VOL. XLV. No. 9 SEPTEMBER 1960

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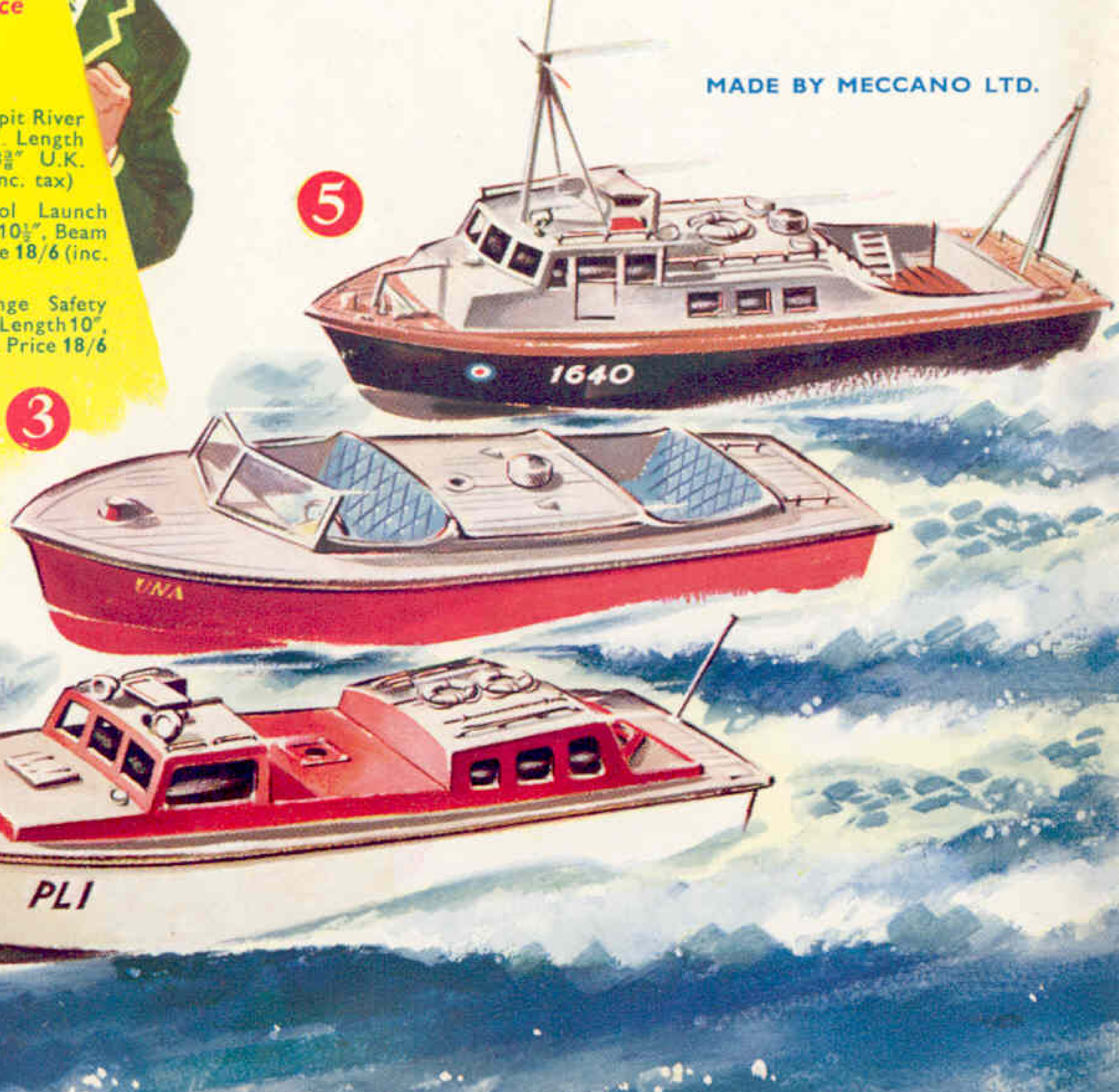

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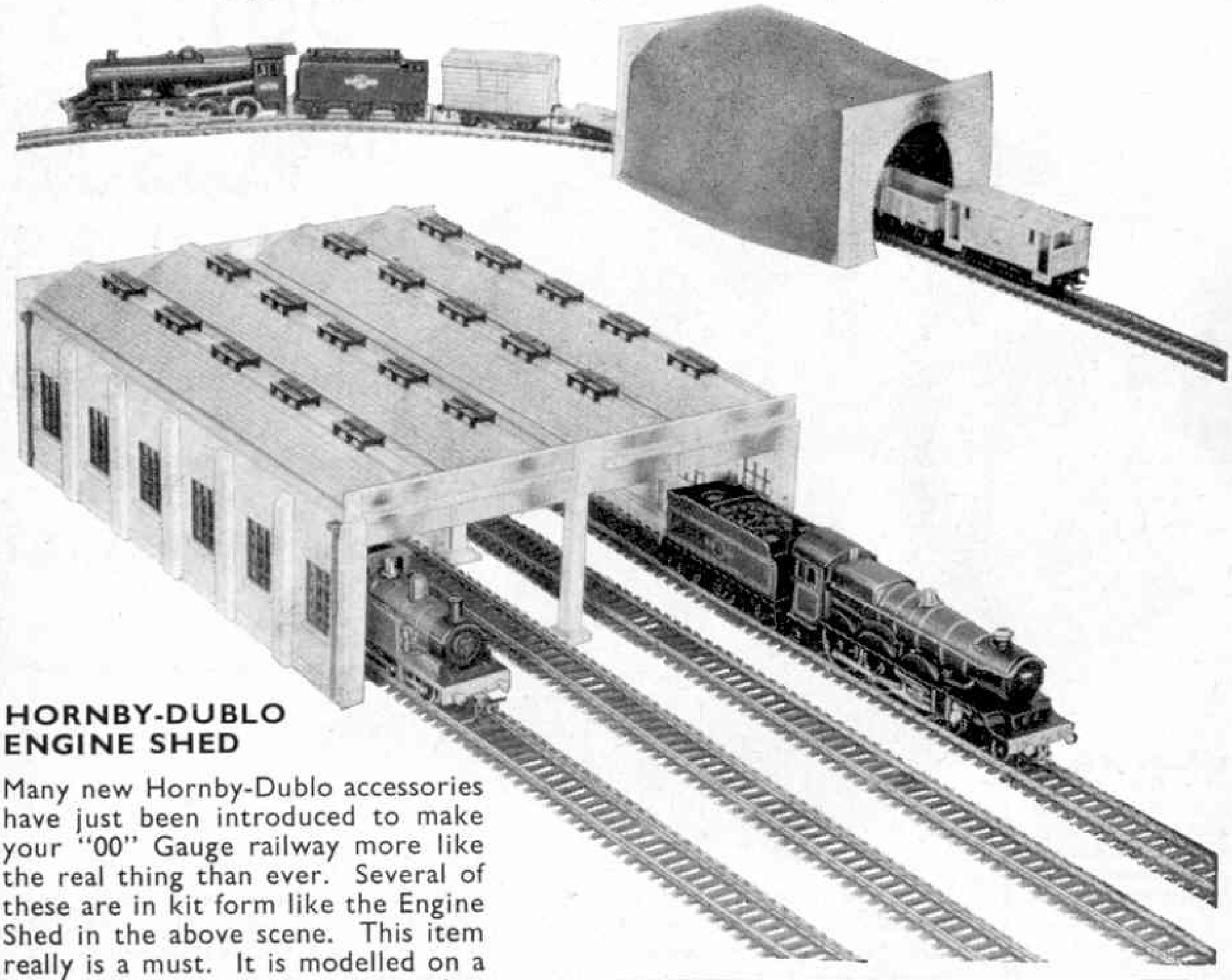

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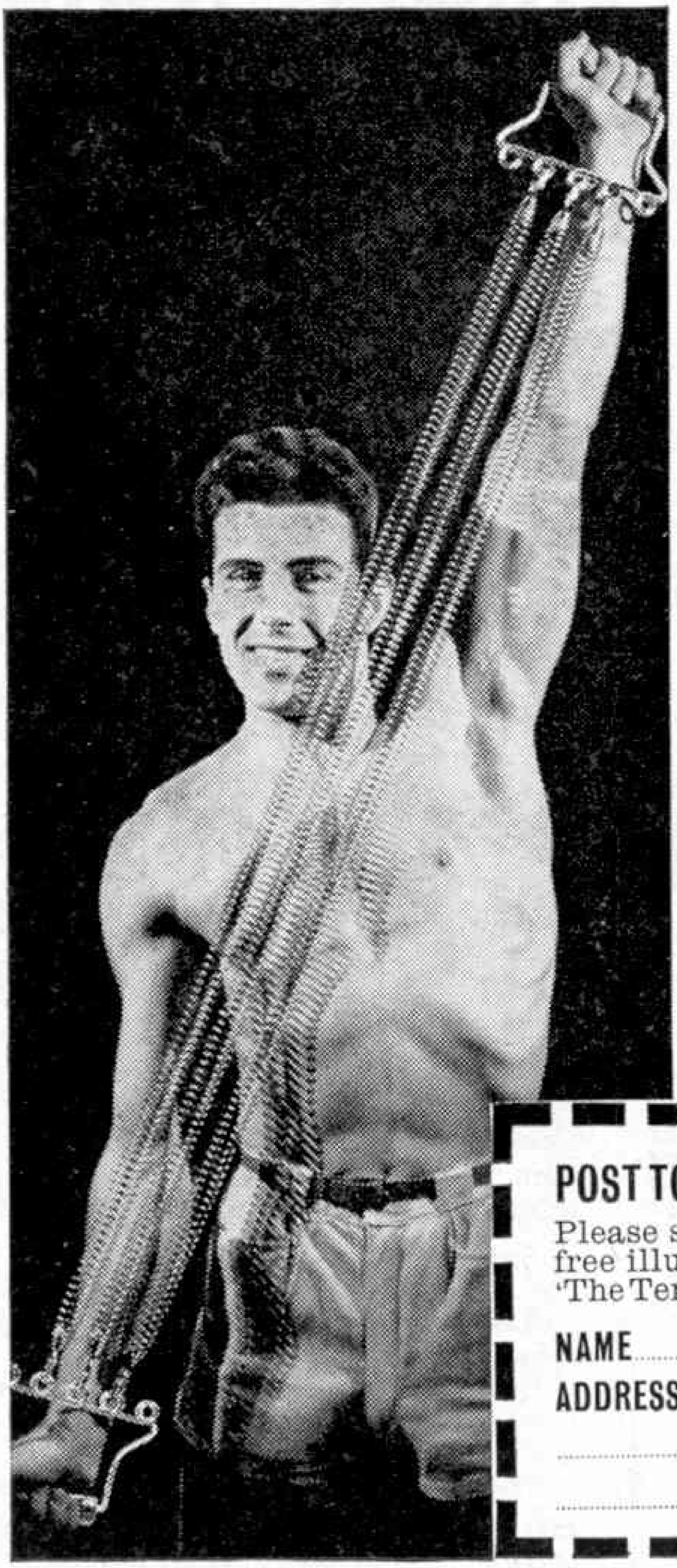

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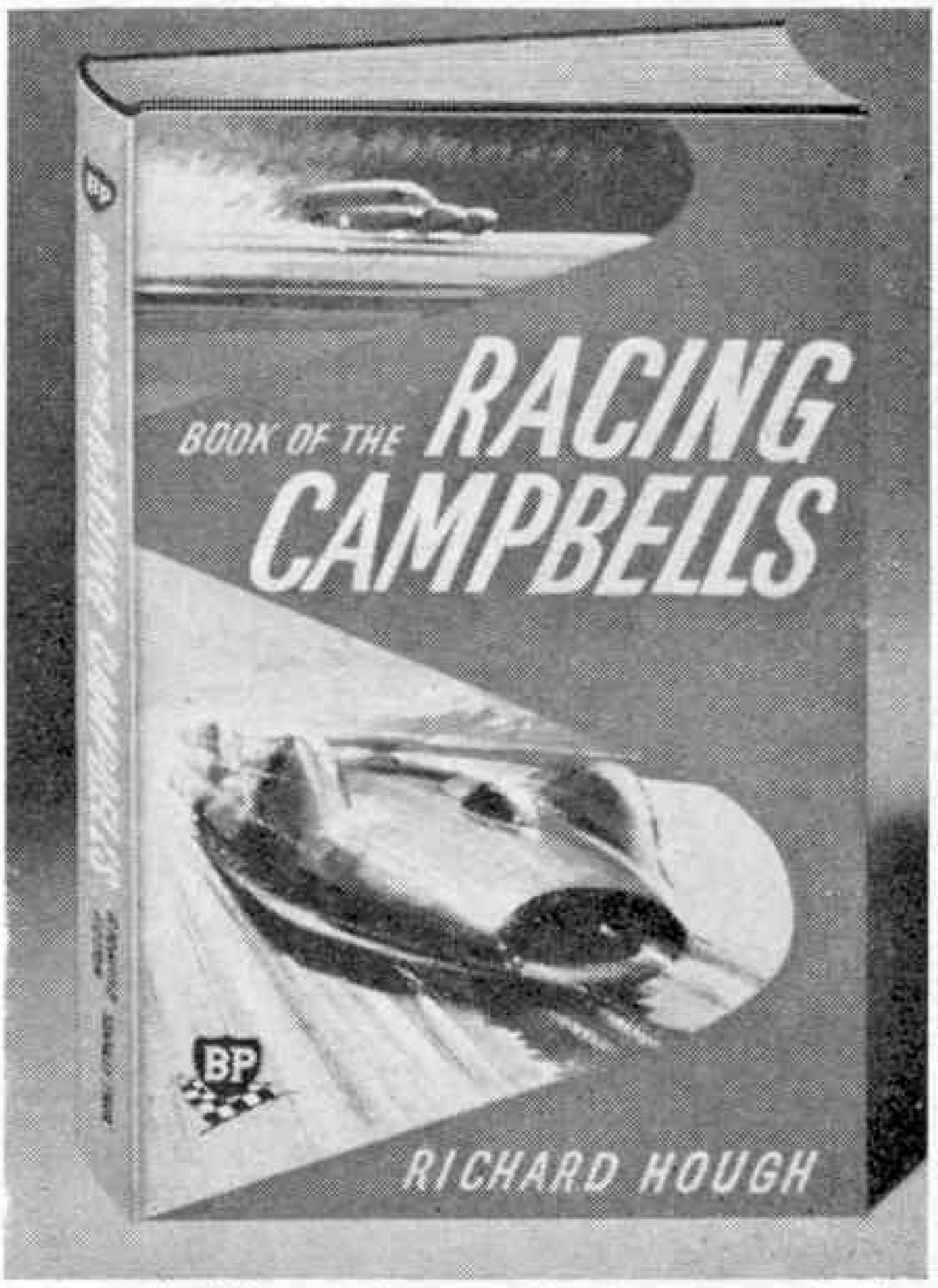

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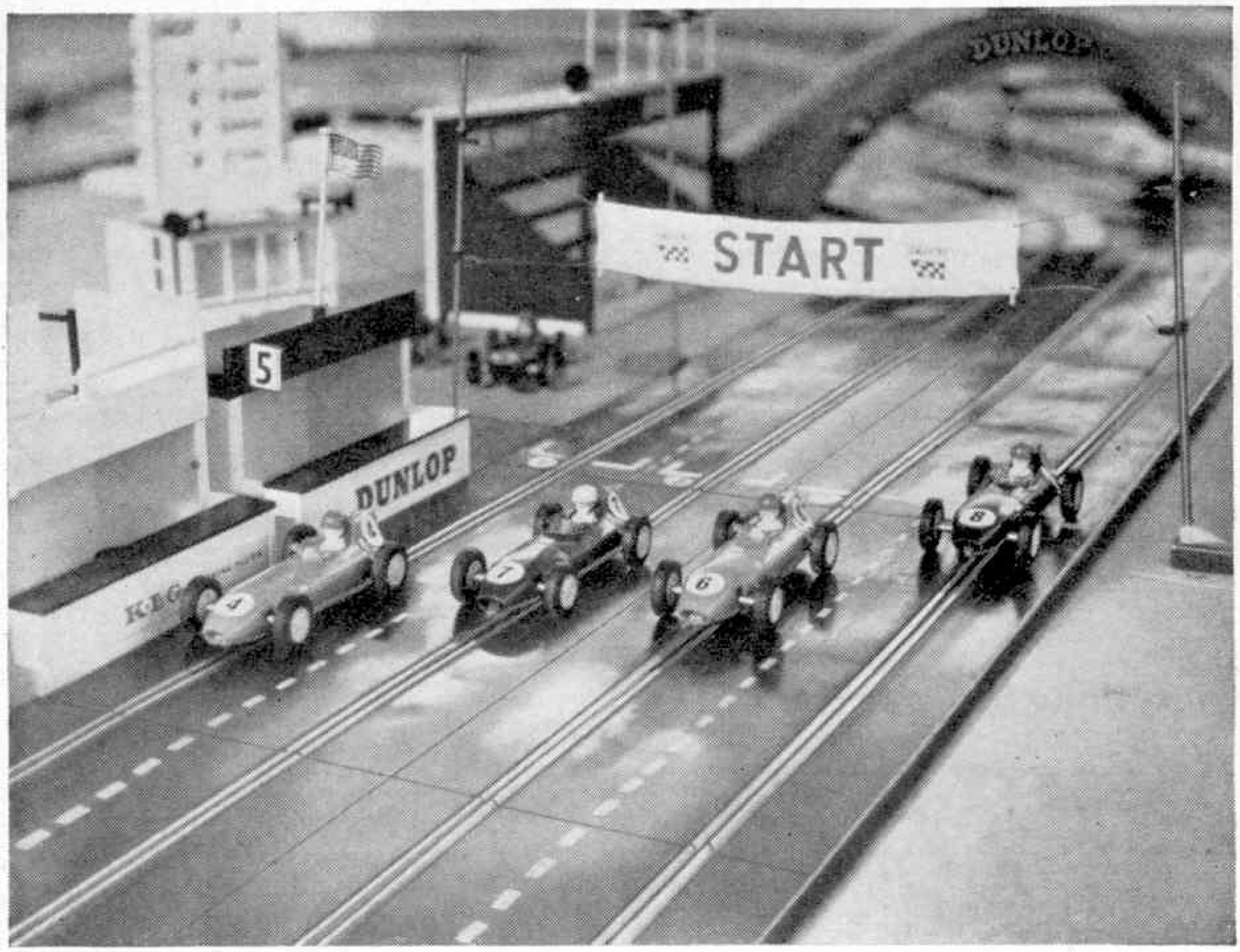

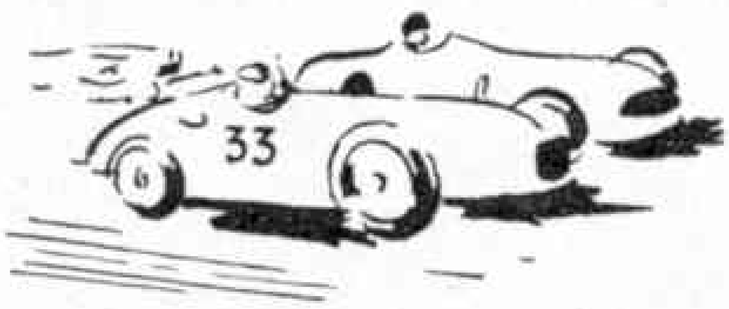

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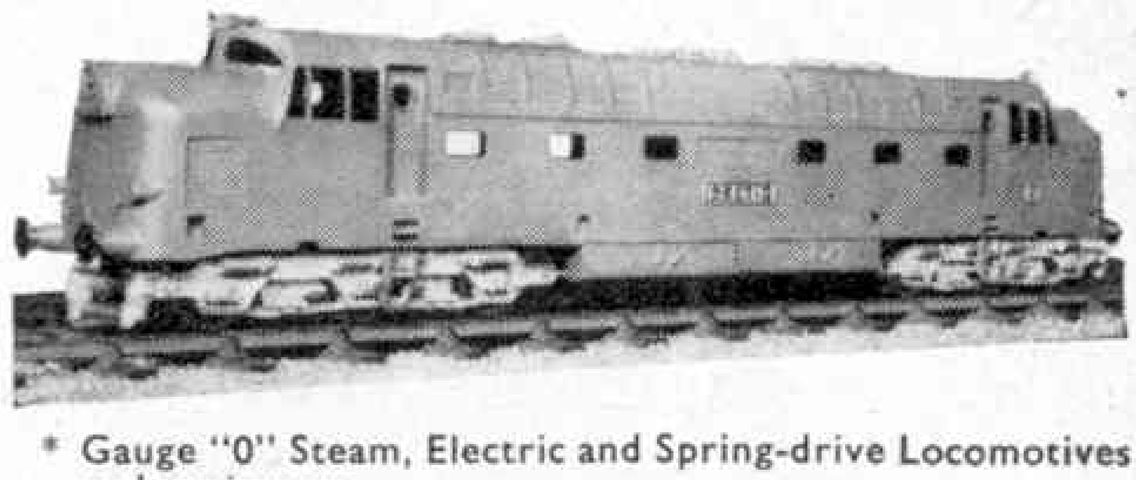

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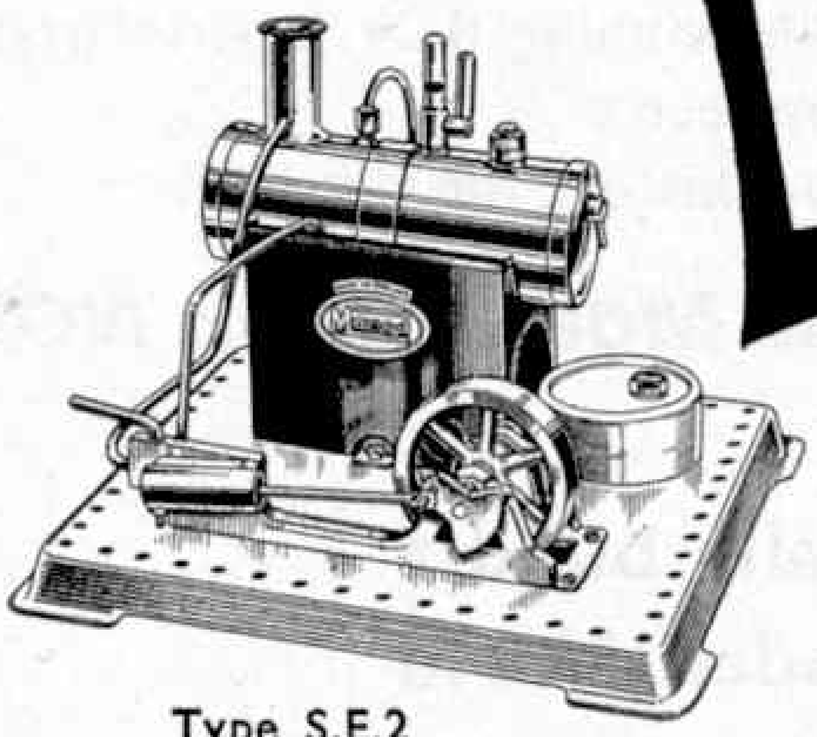

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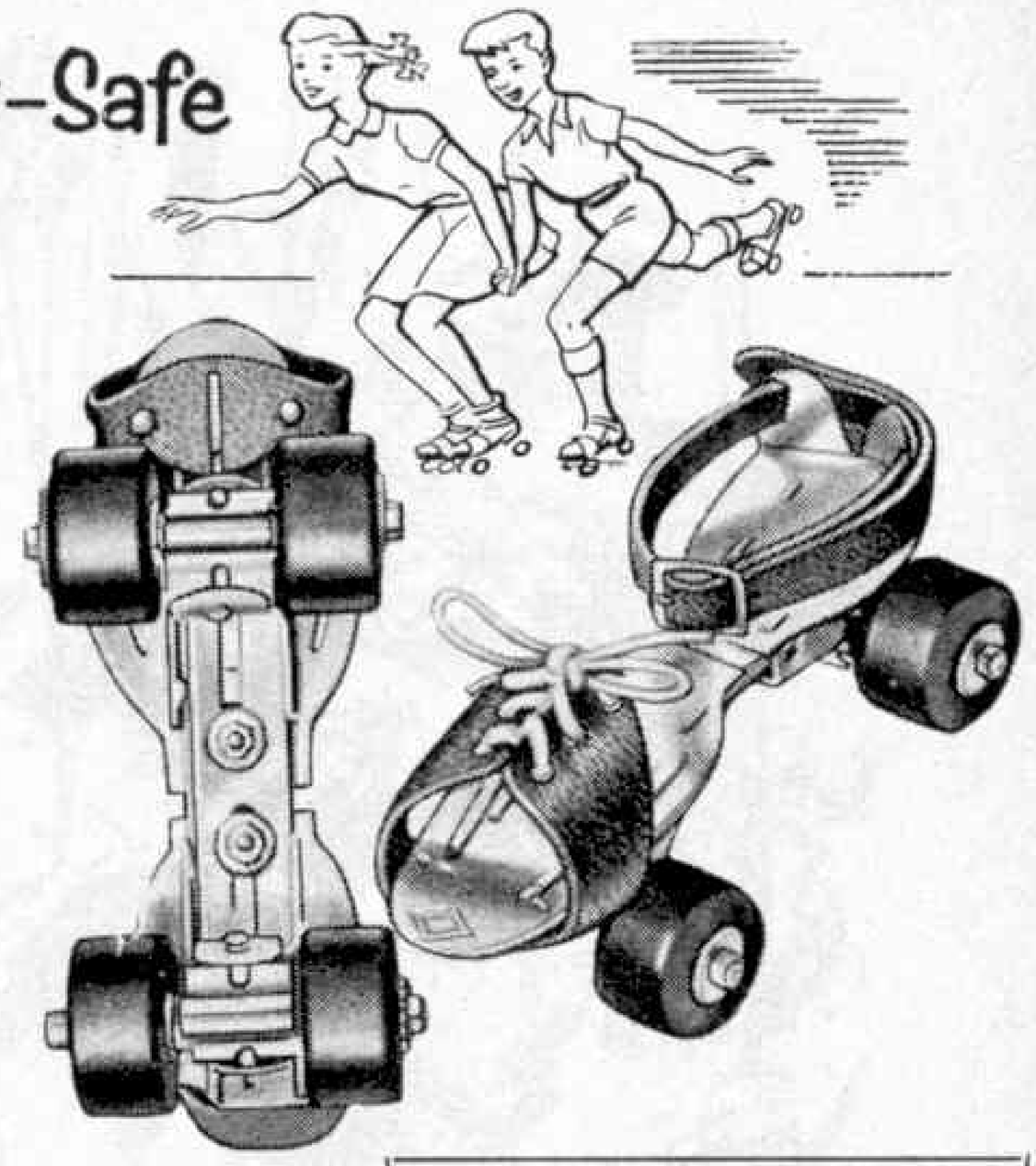

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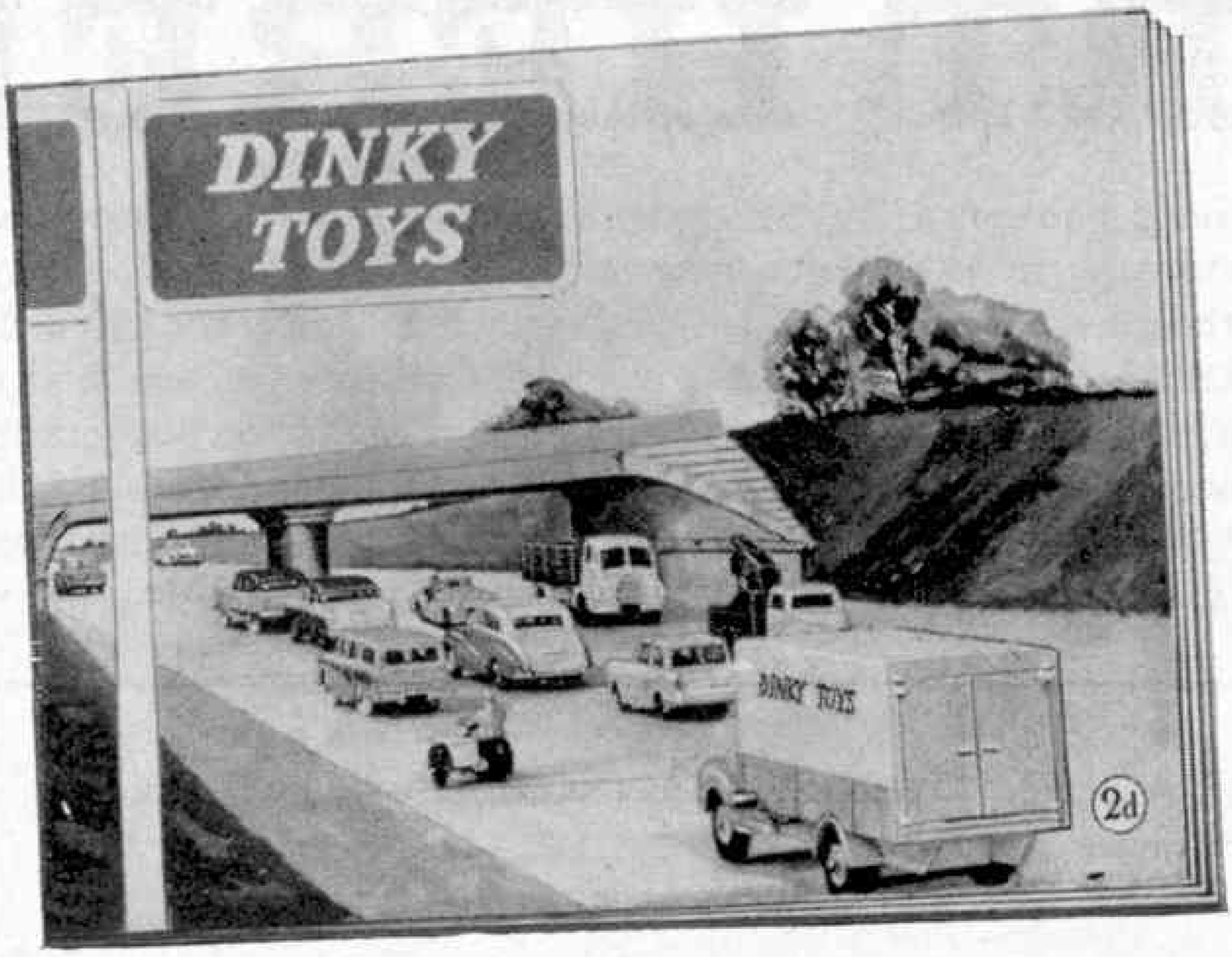

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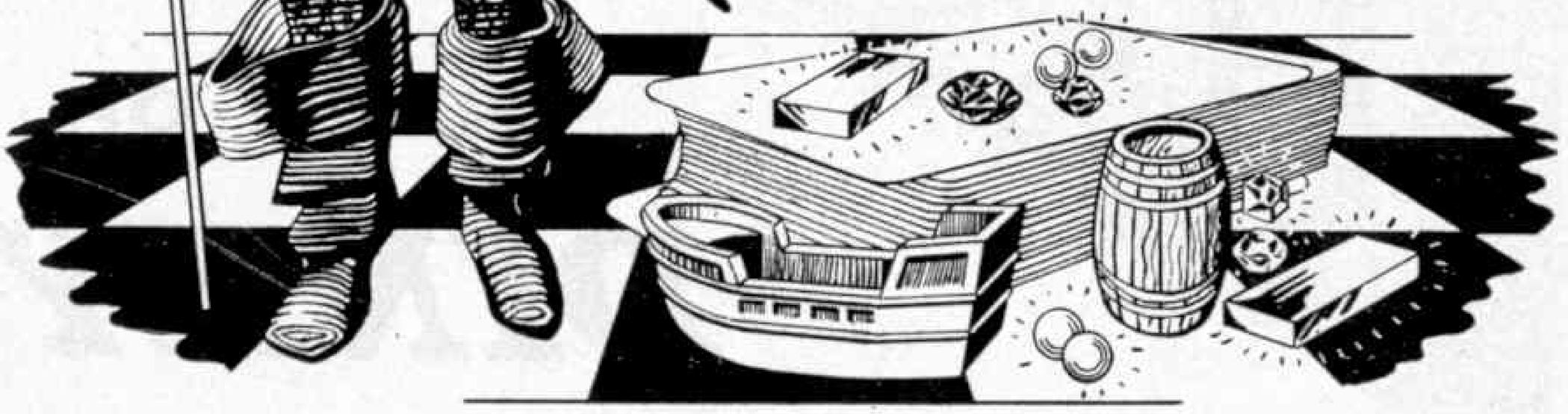

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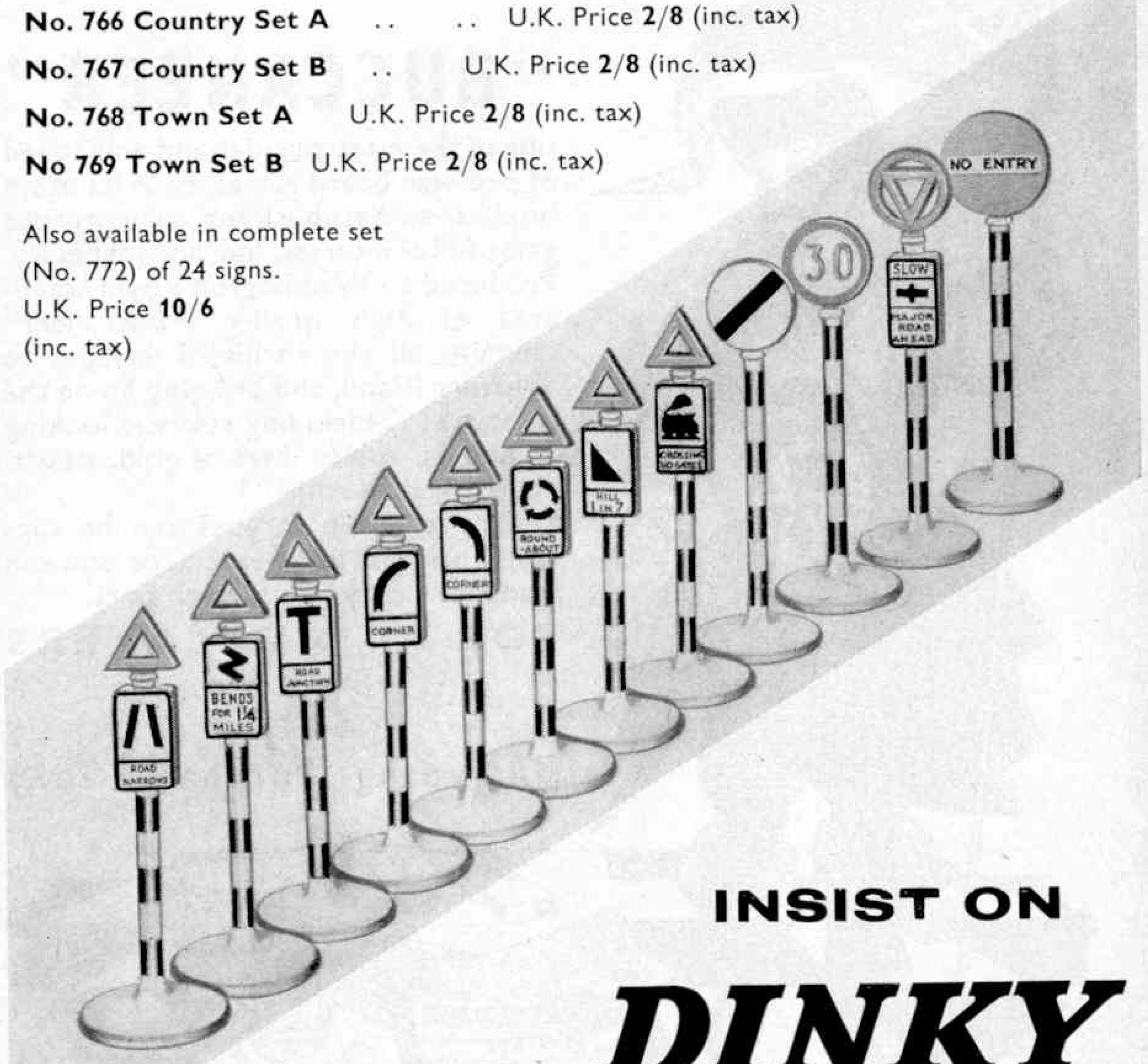

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EDITOR: GEOFFREY BYROM
ASST. EDITOR: ERNEST MILLER

Vol. XLV
No. 9
September 1960

A New Ocean Ambassador

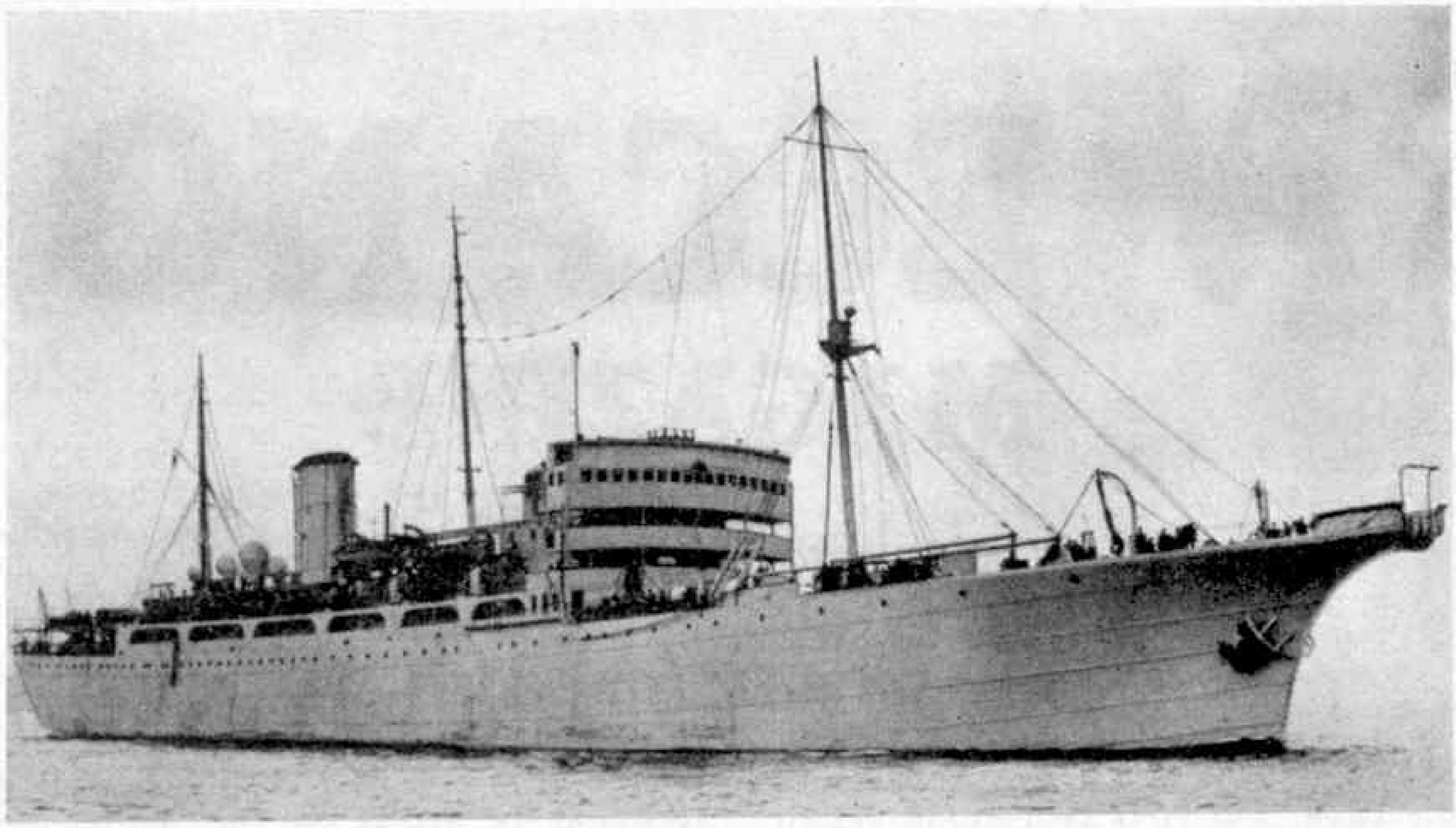
SHIPS and shipping are part of Britain's life blood and facts concerning vessels old and new are, I know, of intense interest to many readers of the *Meccano Magazine*. Earlier this year, you will remember, we told the story of the new Orient Line ship *Oriana*, which at the time of her launching last November was the biggest British liner to be built since before the war. Since then, another magnificent ship, the *Canberra*, bigger even than *Oriana*, has gone down the slipways. An article in this month's *M.M.* describes this fast modern vessel which, with *Oriana*, will eventually open up a new era of travel in the Pacific area.

When *Canberra* was launched in March by Dame Pattie Menzies, wife of the Australian Prime Minister, a bottle of Australian wine was used—instead of the usual champagne—as a symbolic sealing of the bond between Britain and the huge Continent at the other side of the world to which this wonderful ship will sail. She will bring the two countries even closer together than they are now, for when she sails on her maiden voyage in the middle of next year, she will complete the trip in 21 days.

From the marvels on the sea, to wonders on land . . . on pages 442–443 of this issue you will find an article on the Illuminations which constitute summer and autumn attractions at some of Britain's resorts. They are primarily aimed, of course, at promoting trade in those towns but, the commercial aspect apart, they may well be considered by many to be an engineering wonder in their own right. The set pieces in particular call for ingenuity in design and expert workmanship, and the yearly operation involves a great deal of planning about which (if I may be excused the pun) some of our readers may be in the dark. I hope you enjoy reading about the Lights.

THE EDITOR

A scene from the world-famous Blackpool Illuminations. Picture by courtesy of Blackpool Corporation.



Changes in undersea techniques

New Pacific Telephone Cable

LAST autumn a Pacific Cable conference was held in Sydney, attended by representatives of the Governments of the United Kingdom, Canada, New Zealand and Australia to consider the possibility of laying a telephone cable across the Pacific Ocean from Canada to New Zealand and Australia.

The conference decided that the proposition was quite practical and recommended that work on it should start at once. The cable will be more than 8,000 nautical

By J. G. Potter

miles in length and will cost £26,300,000, of which £8,300,000 will be paid by the United Kingdom. The construction and maintenance of the cable will, so far as the United Kingdom is concerned, be undertaken by Cable and Wireless Ltd.

Of vital importance

This is one of the biggest telecommunication projects ever visualised but its most important aspect is that it will be the second link—completing the first half—of the Commonwealth round-the-world telephone cable. The first link, United Kingdom–Newfoundland–Canada, is at present under construction and will be laid in the summer of next year.

Communications between the members of the Commonwealth are, of course, of vital importance. Periodic fading and interference, to which all long-distance radio is subject, can have very serious consequences and as no foreseeable developments are likely to overcome these drawbacks the only safe alternative is cable.

The new cable will be the third to be laid from Canada to New Zealand and Australia. The others, laid in 1902 and 1926 by the Pacific Cable Board, follow the route Bamfield (Vancouver)–Fanning Id–Suva–Auckland–Sydney. The Bamfield–Fanning Id sections, totalling 3,466 miles, are the longest submarine cables in the world.

Increased capacity

These fine cables are still giving excellent service but can be used for telegraph purposes only and, in comparison with the new project, are of very limited capacity.

The new cable, embodying all the latest developments in cable engineering, will have capacity for at least 80 simultaneous telephone conversations. Each of the

H.M.T.S. Monarch, pictured at the top of this page, is the biggest cable ship in the world.

telephone circuits could be used to provide 24 telegraph channels, available for telegraph or telex purposes.

This development is the result of research carried out mainly by the U.K. Post Office Research Laboratories, and some of the improvements will not be in actual use until the United Kingdom-Newfoundland-Canada cable, mentioned above, begins working next year.

The first long-distance telephone cable, the Transatlantic Telephone Cable, which is a joint undertaking of the British, Canadian and American Governments, was laid in 1956. It is, in fact, two cables, loaded with one-way repeaters or amplifiers of American design, each cable working one way only. Originally it was designed to carry 36 simultaneous telephone conversations but subsequent technical developments have increased this number to 56.

A section of light-weight unarmoured submarine cable. This photograph, and that on the preceding page, are reproduced by courtesy of Cable and Wireless Ltd.

No external armour

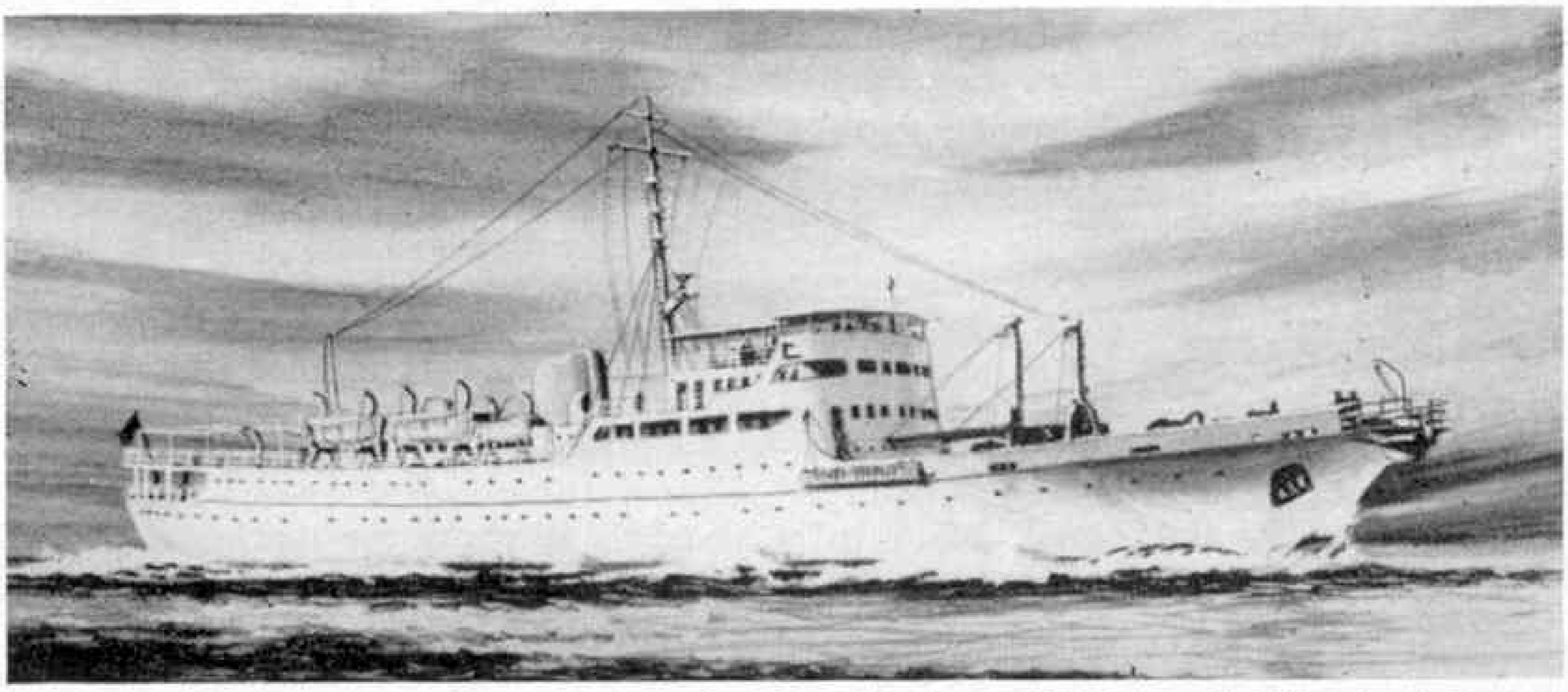
The new Pacific link will be a single cable, capable of working both ways using rigid two-way repeaters of British design.

As might be expected in these days, cable insulation is a plastic material, polythene replacing gutta percha, which has served this purpose since the time when underwater communications were first attempted. Another innovation is the absence of external armour. Previously all submarine cable has been protected from chafing by heavy steel rods twisted round its entire length. Experience has shown, however, that chafing is not a danger to cable lying in deep water since the cable is motionless and can be picked up and relaid successfully after many years' submersion.

The new Pacific cable will lie in depths of up to four miles. Although existing cables have an excellent history as far as breakages are concerned, the new cable will be strengthened by the provision of a central stranded wire. The main danger to which it will be liable, corrosion, will be countered by the polythene outer cover. The diameter of this main section will be one and a quarter inches.

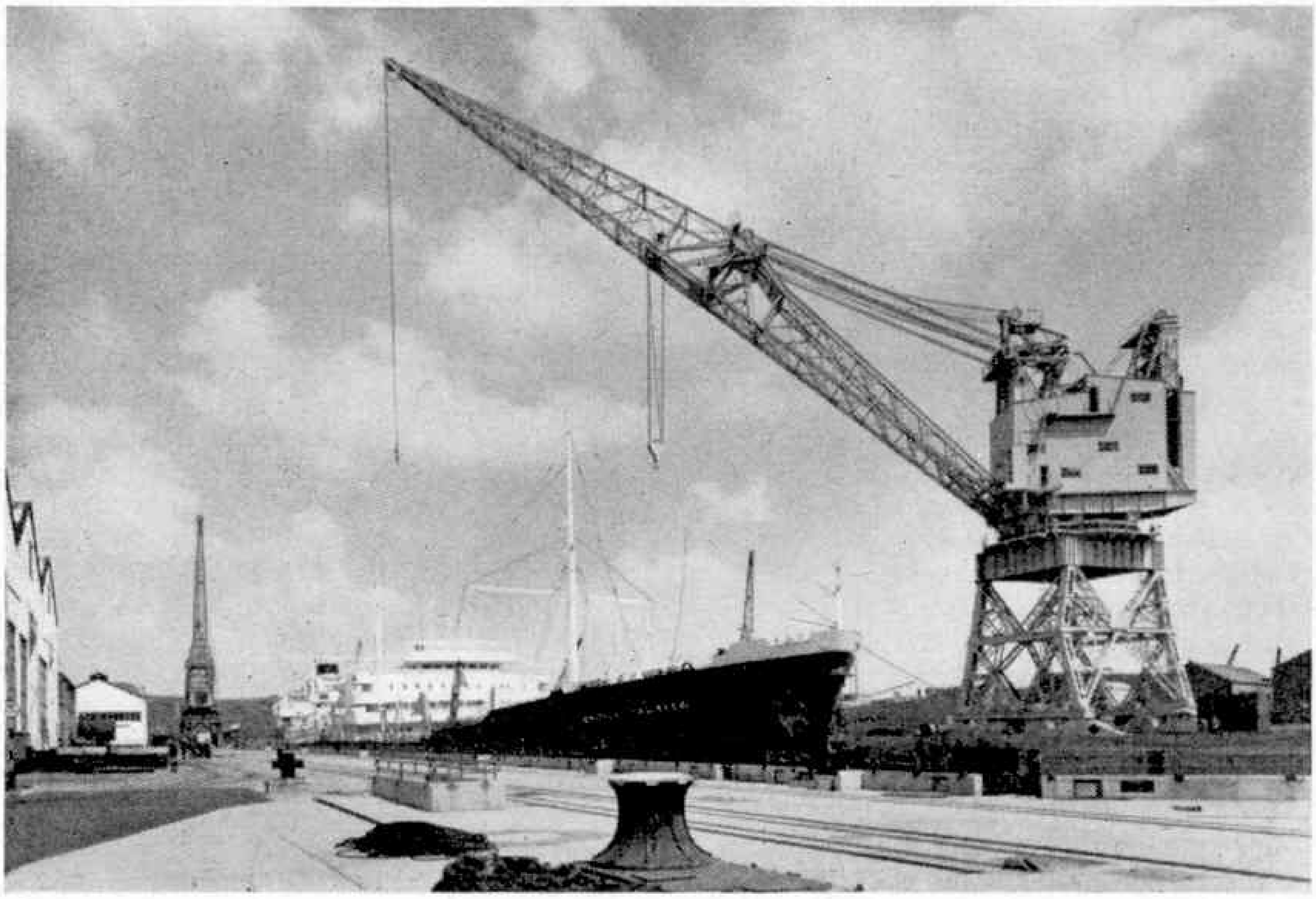
The new type of cable will be much easier to lay, for the steel armour rods protecting cables in the past could cause twisting and kinking, not only during laying operations but even after the cable had been laid. It will also be cheaper to manufacture. The shore-ends, being subject to tidal and normal sea movement, will be armoured in the usual way.

More than 300 repeaters will be inserted in the cable at intervals to maintain signal strength. These will consist of duplicate, three-valve amplifiers arranged so that in the event of the *(Continued on Page 485)*



An artist's impression of the new cable repair ship which Cammell Laird are building for Cable and Wireless Ltd. Illustration: Cammell Laird and Co. (Shipbuilders & Engineers) Ltd., Birkenhead.

A Huge Dry-Dock Crane



NEW LANDMARK AT FALMOUTH

By The Editor

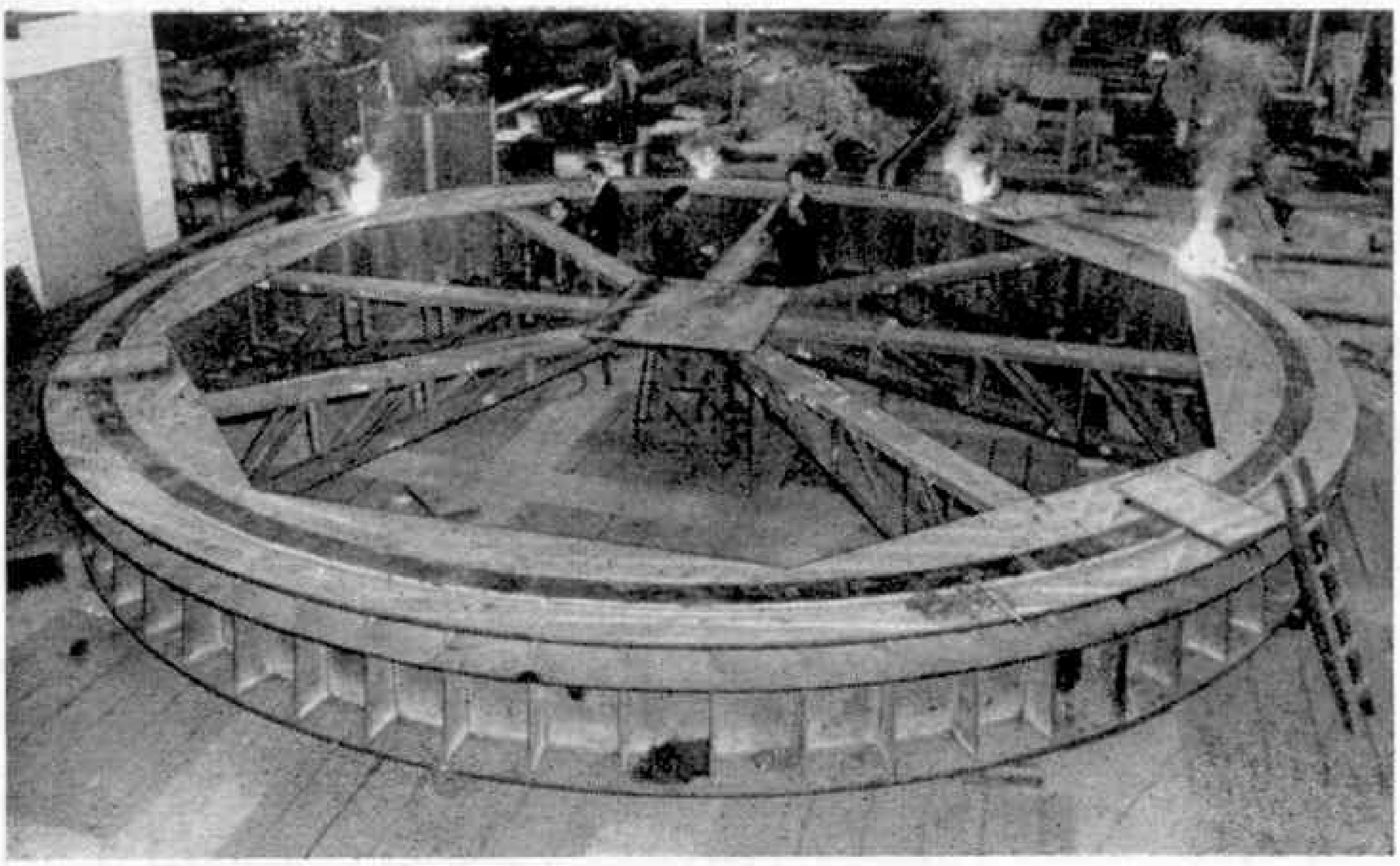
OUR cover this month takes us to Falmouth, where a giant jib crane capable of lifting 48 tons at 105 feet radius has been installed at the new Queen Elizabeth dry-dock of Silley Cox and Co. Ltd.

This crane, designed and built by Stothert and Pitt Ltd., of Bath, was constructed to the particular requirements of the dock which is capable of handling tankers of up to 85,000 tons deadweight. The advent of super tankers and the development of corresponding dry-dock facilities has increased the need for cranes of large capacity and outreach and the crane built by Stothert and Pitt fulfils all the necessary requirements.

The crane weighs 636 tons unloaded and at minimum radius—that is, when the jib is at its highest point—the jib nose is about 247 feet above quay level. In other words, it is half as tall again as Nelson's Column! The maximum working radius of 105 feet takes the main hook 11 feet beyond the centre line of the dock, which is more than 130 feet wide. Also required on the crane was an auxiliary hoist with 15 tons capacity up to 156 feet maximum radius, and 12 tons capacity out to a radius of 175 feet, so that loads could be handled on the remote side of the dock. Finally, further provision was required for the occasional lifting of 61 tons on the main hook.

In common with most dockside cranes, the Falmouth giant is of the level luffing type. The term luffing, as applied to cranes, means to raise or lower the jib. Normally, of course, this raises or lowers the load which not only slows up the operational cycle but, when a load is being raised, adds to the horse power needed to move the jib itself.

The new crane (above) straddles the dry-dock at Falmouth.



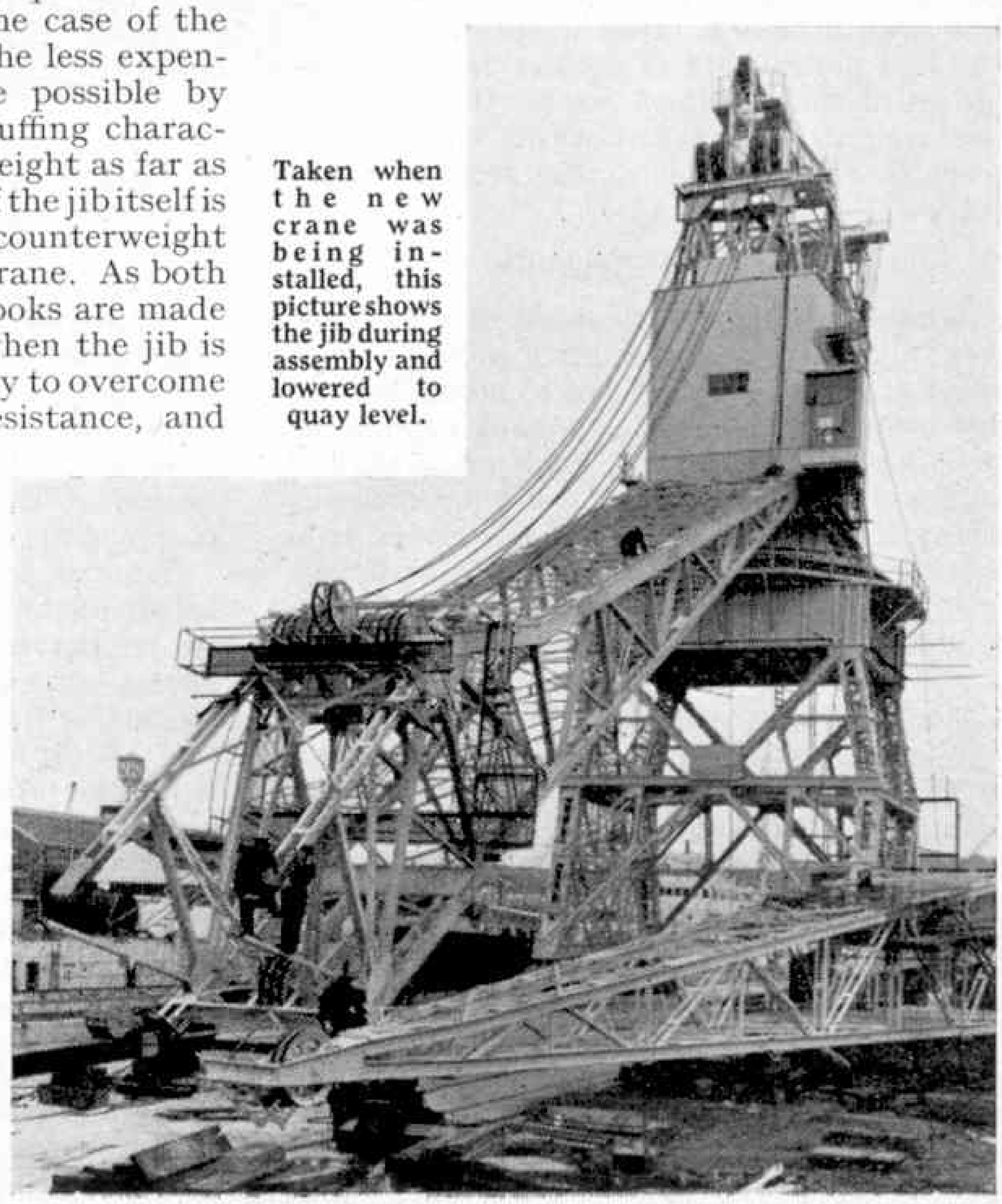
This welded circular girder photographed during assembly in the works of Stothert & Pitt, Ltd. is part of the new level-luffing crane installed at Falmouth.

Because of this many cranes are designed with luffing systems which enable the load to remain on a level path throughout the luffing operation and these are known as "level" luffing cranes.

For very large luffing jib cranes there is a practical limit at which the use of wire rope purchases to hold the jib gives place to the screw and nut system. In the case of the Falmouth crane, the use of the less expensive rope system was made possible by achieving an accurate level luffing characteristic and by reducing jib weight as far as was practicable. The weight of the jib itself is closely balanced by a sliding counterweight suspended at the rear of the crane. As both the main and the auxiliary hooks are made to follow a horizontal path when the jib is luffed, the luffing drive has only to overcome friction, inertia and wind resistance, and thus can be of comparatively low power. Different means are used to achieve the level hook path on the main and auxiliary hoists. On the auxiliary hoist there is a modified six-part "Toplis" reeving which produces the desired effect by the positioning of the pulleys and multiple rope reeving. The main hook is suspended by four parts of rope calling for a more complex system in which the anchor part of the purchase is wound on a section of the luffing barrel. Welding has been used extensively in the construction of the crane.

Accurate balancing

Weighing 55 tons, and measuring 195 feet overall, the crane jib is of riveted lattice braced construction, with main cords and bracings in high tensile steel. It can be derricked from a position with the nose



Taken when the new crane was being installed, this picture shows the jib during assembly and lowered to quay level.

Another view of the huge crane which travels so silently that an automatic bell has been fitted to warn of its approach.

at ground level by a modified reeving of the rope system, an arrangement which eases erection and maintenance problems. Two 1½ inch diameter steel wire ropes are used for the twin reevings which support the jib from the apex of the superstructure. Two parts are wound on a 5 ft. diameter cast iron barrel which also winds the ropes supporting the jib counter-balance at the rear of the superstructure and the main hoist compensating part. Although this luffing barrel weighs eight tons, it requires only about 25 h.p. to luff a 48-ton load at an average speed of 40 feet per minute, by reason of the accurate balancing and level luffing characteristics of the crane.

Now for some details of the crane superstructure. This is supported on a live ring of conical rollers with a centre pin for location. The slewing motion is driven from a 35 h.p. slip-ring motor which gives a speed of 440 feet per minute at the maximum radius of the auxiliary hook. In all, the weight of the structural steelwork in the crane is in the region of 315 tons.

Need for flexibility

There is a great demand for extreme flexibility in hoisting control in ship repair work since many lifts have to be made from the lower decks of vessels through restricted access points. Since the loads are often out of the driver's view, and there are obstructions to be avoided at various levels, it is necessary to provide a smooth speed variation down to a "creep" which can be maintained for long periods. In the case of the Falmouth crane these essential speed characteristics are obtained by use of "Ward Leonard" electrical control gear. This system is used for such requirements when the mains supply is A.C., and it consists of a motor generator set—in this instance of 42 kilowatts—to provide D.C. current for the motor which drives the load. This power can easily be varied to meet necessary requirements.

The main hoist has a rated speed of 7½ feet per minute for a load of 48 tons and gear ratios enable these figures to be changed to 15 feet per minute for a 24-ton load. The hoist motion driving motor develops 50 h.p. at 720 r.p.m. and the auxiliary hoist motor of similar design, but developing 40 h.p., gives a rated hoisting speed of 30 feet a minute with a load of 15 tons.

A further point of great interest is that electronic weighers have been fitted to both the main and auxiliary hoists since, in docks which are frequently called on to serve unfamiliar ships, it is helpful to have some means of knowing the weights of various components which are lifted.

Time is an all important factor in ship repairing and, since heavy lifts may have to be traversed the length of the dock, special attention was paid to the travelling motion of the crane. With the crane handling a 48-ton load in a 5 lb. per square foot wind the most heavily loaded bogie assembly carries a load of 255 tons. The six centre-flanged wheels sharing the load at each corner travel on double flat-bottomed rails. Three bogie wheels at each corner of the crane are driven so that there is favourable distribution of tractive effort for various loadings.

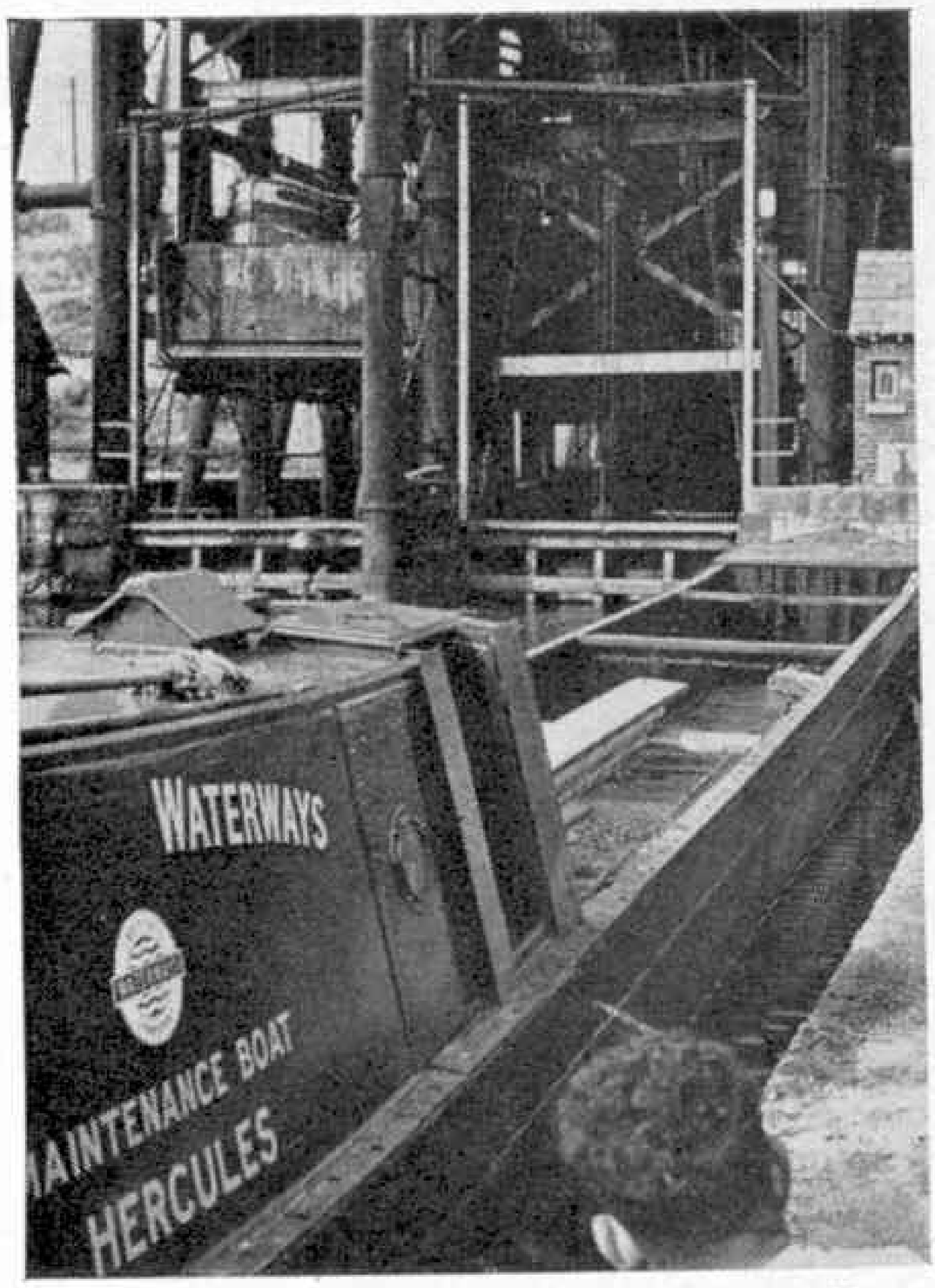
This article is based on information kindly provided by Stothert & Pitt, Ltd., to whom we are also indebted for the illustrations and for that on which the front cover is based.

BARGE LIFT ON THE WEAVER

By Norman Jones

ONE of the problems facing Britain's canal builders was how to overcome differences in levels. The easiest way was to use a lock, or a series of them if the fall was great. However, this was not always possible. At some places there was not the room to spare for a flight of locks; at others, the loss of water which would be used in working such locks might be too much. Sometimes inclined planes were used instead when the boats, placed lengthways in cradles running on railway lines, were hauled by stationary steam engines up and down the hillsides between the upper and lower canals. The last inclined plane to work was at Trench on the Shrewsbury Canal; it closed in 1921, but parts of the earthworks may still be seen.

Some waterways preferred lifts. One still remains. A very fine example, it is in daily use at Anderton, near Northwich, Cheshire, where it connects the River Weaver to the Trent and Mersey Canal.



The barge Hercules waits to enter the boat lift at Anderton. When this picture was taken the right hand lift was not in action owing to maintenance work. Picture: N. Jones, Warrington.

Fifty feet below

The River Weaver was made navigable in 1720. Today, vessels of up to 300 tons can sail between Winsford and Weston Point Docks, near Runcorn, where the river joins the Manchester Ship Canal. The Grand Trunk Canal (later re-named the Trent and Mersey Canal) was built by the great canal engineer, Brindley, in 1776, to connect the River Trent in the Midlands with Runcorn. The River Weaver at Anderton lies 50 feet below the Trent and Mersey Canal and, at first, cargoes were manhandled between craft on the upper and lower waterways. This needed a lot of man-power; furthermore, some goods were damaged and others stolen, so a means had to be found to permit barges to sail directly from the canal into the river. There was no room for locks.

The River Weaver was under the control of a group of trustees, and their engineer, Mr. Edward Leader Williams suggested building a hydraulically operated double lift which would carry barges, floating in caissons (iron troughs) between the water-ways. This plan was agreed on and the lift was opened in 1875.

The lift site was an island in the Weaver, and a wrought iron aqueduct, 162 ft. 6 in. long and 34 ft. 4 in. wide, weighing 1,050 tons, was needed to join the lift head to a basin which had been cut at the side of the canal. There were two troughs, each 75 ft. long and 15 ft. 6 in. wide. Each held two narrow boats, side by side, floating in five feet of water.

Fastened centrally under each trough was a 3 ft. diameter vertical ram which rose from a tunnel in the river bed. A steam engine worked hydraulic presses which powered the rams and the troughs balanced each other, one falling as the other rose. After ten years the rams became scored. Copper strips were put into the grooves but this seemed to make the corrosion worse and it was found that the high chemical content of the waters was causing electrolytic action. And so a condensing plant was put in and the rams were worked with pure water.

In 1902 the steam boilers were worn out and were replaced by electric pumps. But the lift generally was in poor repair and in 1904 Mr. J. A. Saner, then engineer, suggested scrapping the hydraulic system and placing pulleys, cables and winches above the lift housing to raise and lower the caissons.

(Continued on page 485)

A gnome among the bright lights. Photograph by N. C. B. H. Allen of Morecambe.

Scintillating spectacle for millions

The Seaside Lights

By Leslie E. Wells

IT is not certain who first thought of using massed coloured lights as a crowd spectacle. What is certain is that Autumn seaside resort illuminations are indeed big business which are admired by at least 7,000,000 people who spend millions of pounds each season to "see the Lights".

It is small wonder, then, that the Corporations of Blackpool, Morecambe, and Southend, to quote the three leading enthusiasts, have need to regard illuminations as an important part of their business.

Not even Coney Island can compare with Blackpool's gigantic light-up. The cost of this year's Illuminations from September 2 to October 17, will be £100,000 (about £88,000 rateborne). More than 350,000 lamps, of 100 different types, will form a six-mile backcloth against which hundreds of artistic and strikingly original features and tableaux will scintillate.

More than 3,000,000 visitors will witness this grand annual display, the twenty-eighth of its kind, where the electricity demand will reach 3,000 kilowatts and the actual electricity consumed will total 675,000 units for the period of 46 nights.

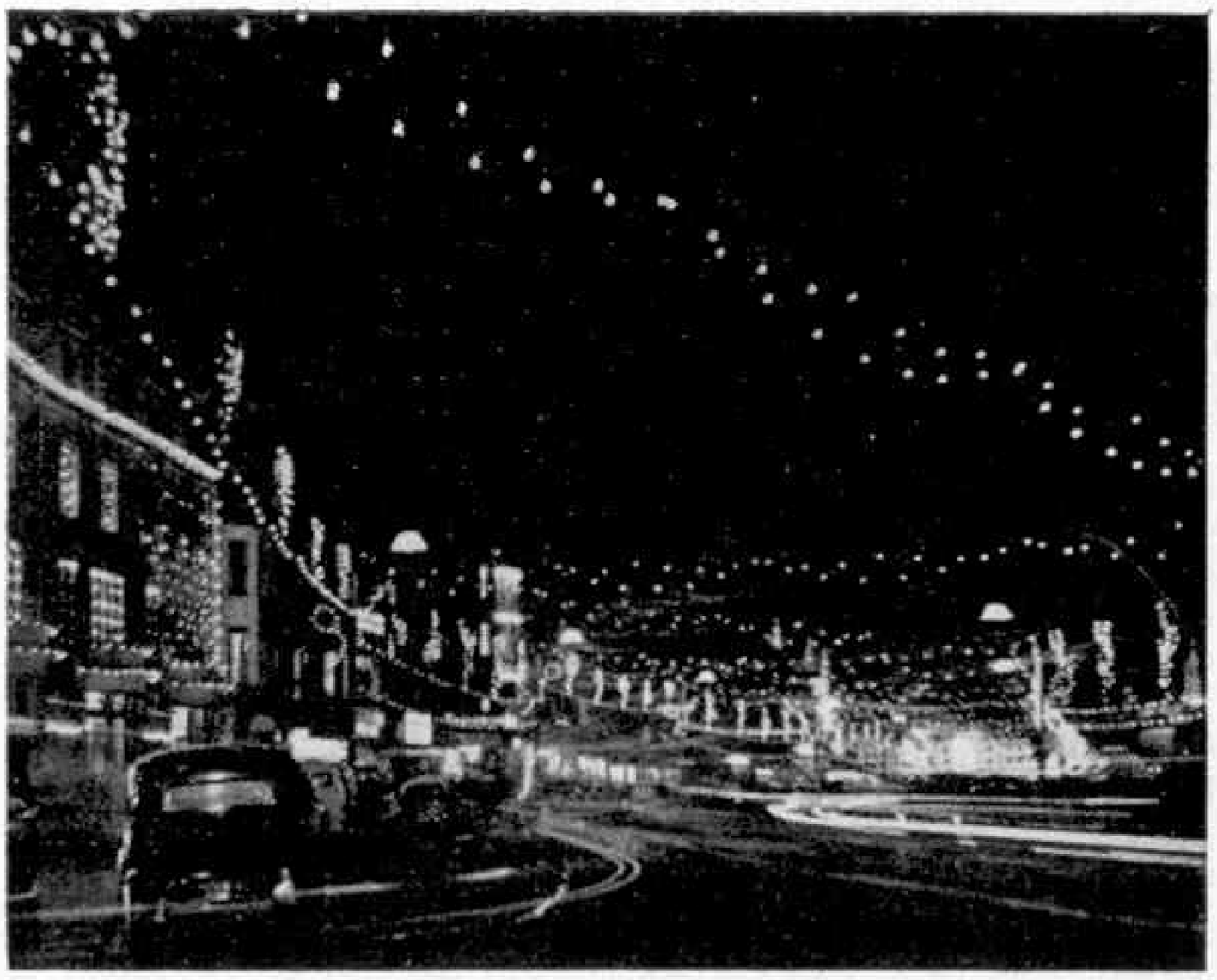
The Lights workshop area alone covers 100,000 square feet or 2·3 acres, and 75 workmen are employed all the year round, their number increasing to 120 at the peak period. Total man-hours involved in preparation, maintenance, erection, and dismantling amount to 170,000. More than 75 miles of electric cable and 50 miles of festoon strip are used. No wonder the Blackpool Illuminations have been described as "The greatest free show on earth."

Although the presentation of spectacular displays of decorative illuminations was pioneered by Blackpool, it is said the idea was fostered by two residents who had seen similar displays in Berlin and Milan. Historians give original credit for night-time coloured lights to the Chinese and their gay lanterns, and then skip for the modern development to displays staged by the French, at Versailles, towards the end of the last century.

The Lancashire resort's reputation for spectacular Lights dates back to 1912 when they were so successful they were repeated the following year.

Terrific reception

During World War I such schemes were impossible to arrange and Blackpool did not revive hers until 1925. The General Strike of 1926 caused another break, but thereafter the spectacle continued annually until 1938, and when the war-enforced blackout was lifted, in 1949, Blackpool staged a revival which met with a terrific reception from a light-starved nation. To-day the town's illumination equipment



Promenade scene—another view of the Lights at Morecambe. Photograph: Geoffrey Fielden.

is valued at £400,000.

It may come as a surprise to learn that Morecambe experimented with Lights as a means of extending the holiday season more than 40 years ago.

In those days the resort had candles in crystal containers hung about the bushes on the promenade. They were known as "fairy-lights". A small army of youths was employed to light and extinguish the candles each night.

In 1919, as a contribution to the peace celebrations, the town experimented with an electrical display, but it was not until 1937 that Morecambe burst forth in all the full glory of its Illuminations. Since then, with the exception of the war years, the resort has gone from strength to strength—80,000 feet of electric cable, 80,000 lamps, 32 miles of strip lighting, 1,600 pints of lacquer, 2,500 feet of timber, 1,050 floodlights, 20,000 cable clips, 105,000 feet of insulating tape, 35 miles of straining wire, and a consumption of 250,000 units of electricity. The cost of this season's display will be nearly £100,000 and about 1,000,000 visitors will help to repay the enthusiastic effort of the organisers.

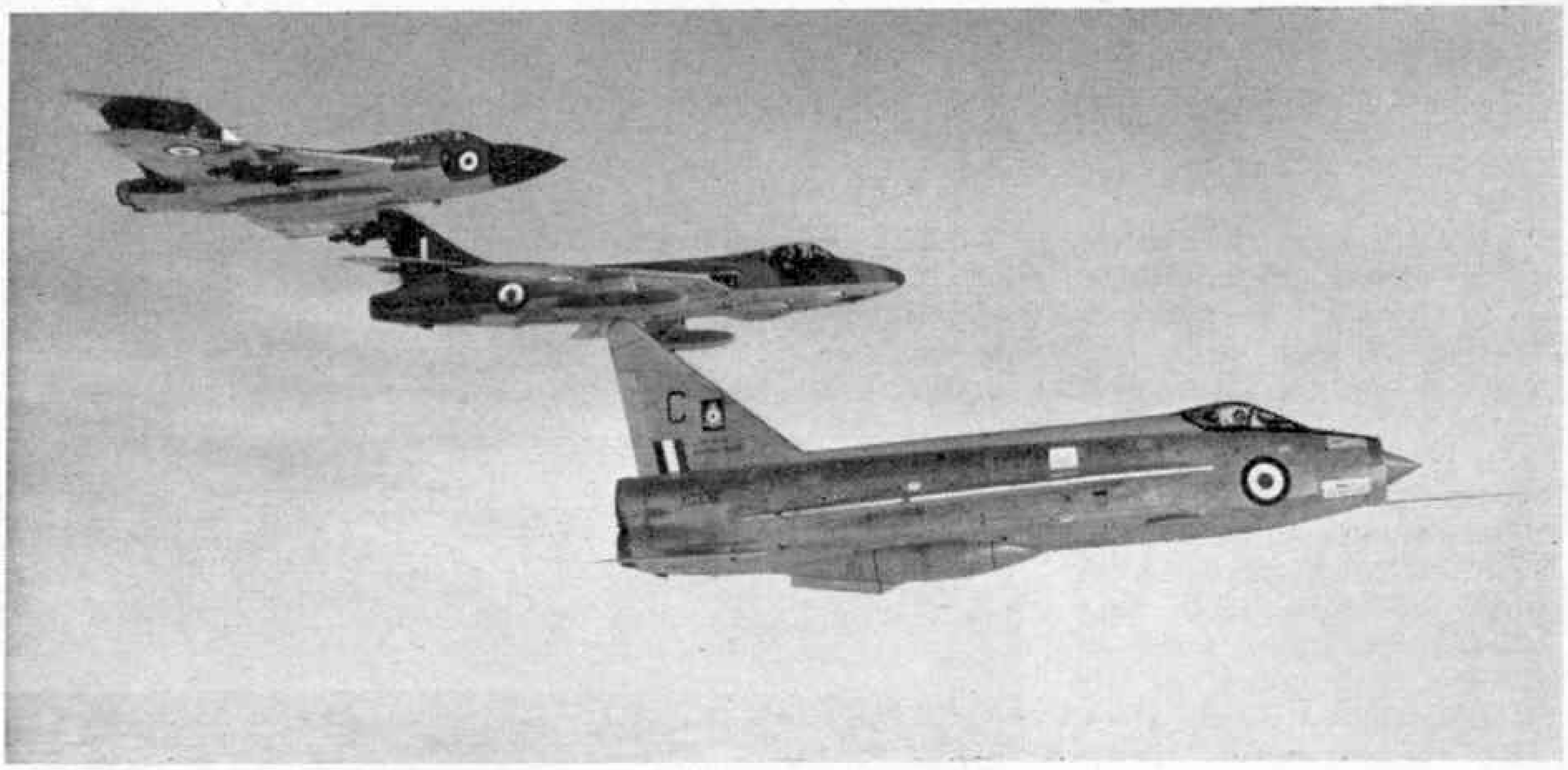
As last year, Morecambe will send out a specially decorated and illuminated bus as an advertising medium to visit hundreds of towns throughout the country, including those on the Scottish Border.

One of the special features about the Morecambe Illuminations is the encouragement given to private enterprise by the offer of prizes for the best and most original illuminated establishment along the promenade and in the town itself. Each year, prizes are offered to the extent of a silver challenge trophy and £400 in cash awards. To foster the spirit of co-operation, the Illuminations Department hires out materials at nominal charges. There are several classes for various types of buildings, including private hotels and business premises.

Right: Overhead designs figure in this picture, by G. Saidman, of the Blackpool Lights. Below: Southend set-piece at the Pier Head.

Southend-on-Sea, at the mouth of the Thames Estuary, claims that the illuminations there are the biggest, brightest and best in the south. They certainly present a never-to-be-forgotten spectacle and attract visitors not only from various parts of Britain but from all over Europe. This year's switch-on began on August 20 and does not end until October 23. After dark the pier—a mile and a third long—presents a wonderful scene of scintillating lights and more than 60 animated set-pieces. This season's theme is "Chinatown" and there are many new three-dimensional illuminated set-pieces with musical backgrounds, including an "Aladdin" scene which is 50 feet in length. On the cliffs, the children will long remember the attraction of the fairy-tale fantasy of "Never Never Land", enhancing the natural beauty of gardens, trees and shrubs.

Technicians responsible for these kaleidoscopes are up against (*continued on page 485*).



A trio of British fighter aircraft. The English Electric Lightning, Hawker Hunter and Gloster Javelin. Air Ministry photograph.

Britain's Defenders

By

John W. R. Taylor

THE fine illustration at the top of this page is one of the first to show the English Electric Lightning fighter in service with the Royal Air Force. Behind the Lightning are examples of the Hawker Hunter single-seat day-fighter and the Gloster Javelin two-seat all-weather fighter which it has been designed to replace, eventually, as Britain's main defence against attack by piloted bombers.

AIR NEWS

On the Lightning's tail-fin is the badge of the Air Fighting Development Squadron, based at the R.A.F. Station of Coltishall, near Norwich. This squadron is part of the Central Fighter Establishment and has the job of testing all new R.A.F. interceptors and ground-attack fighters before they are delivered to front-line units, to make sure they will do their job and to suggest any way in which they might be improved.

Lightning No. XG336, in this picture, is one of a pre-production batch of 20 specially built for this kind of testing. Genuine production Mk.1 fighters are already flying, and improved versions with more advanced radar and other changes have been ordered. Standard armament of all of them consists of a pair of 30 mm. Aden guns in the nose and either two Firestreak air-to-air homing missiles, on pylons on each side of the fuselage, or 48 unguided air-to-air rockets or two more Aden guns. Location of the target, aiming of the weapons and firing are done semi-automatically by Ferranti Airpass radar in the aircraft's pointed nose-cone.

HERCULES DROPS RECORD LOAD

A Lockheed C–130A Hercules recently proved that it is well-named, by dropping, by parachute, a load equivalent to nearly one-third of its total weight. After taking off from the Naval Auxiliary Air Station of El Centro, California, at a gross weight of 121,878 lb., the Hercules was throttled back to a gentle 150 m.p.h. at 5,000 ft. Members of its crew then pushed out of the open rear-loading door a bathtub-shaped metal container full of iron boiler plate, weighing 35,055 lb. A 45,000 lb. drop will be attempted next.

B.E.A.'s 100 FLIGHTS A DAY

For the past two months B.E.A. have been running more than 100 scheduled services from London Airport every day of the week. The most concentrated part of the operation has been between 8 a.m. and 11 a.m. each day, when 28 Viscounts and Comets have left the airport for destinations close to 34 different cities as far apart as Stockholm in the North, Gibraltar in the South and Nicosia in the East.

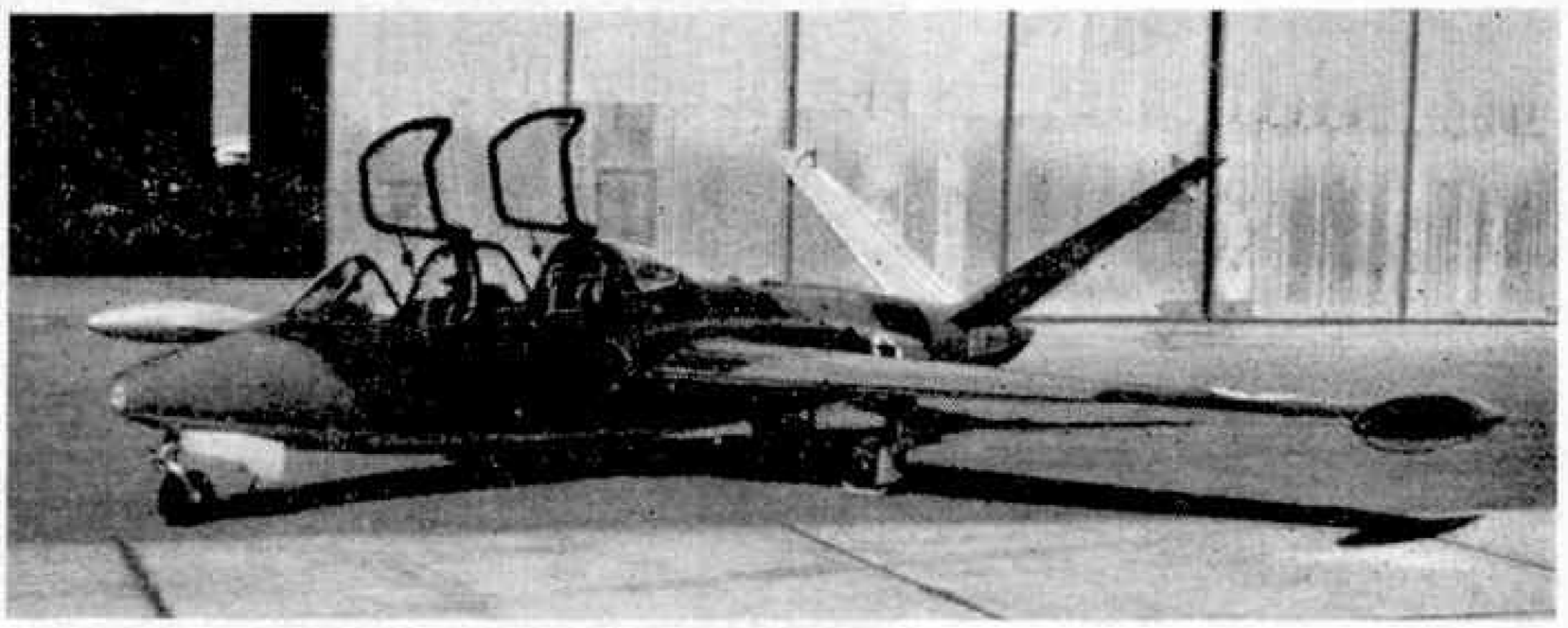
B.E.A. traffic staff at the airport have

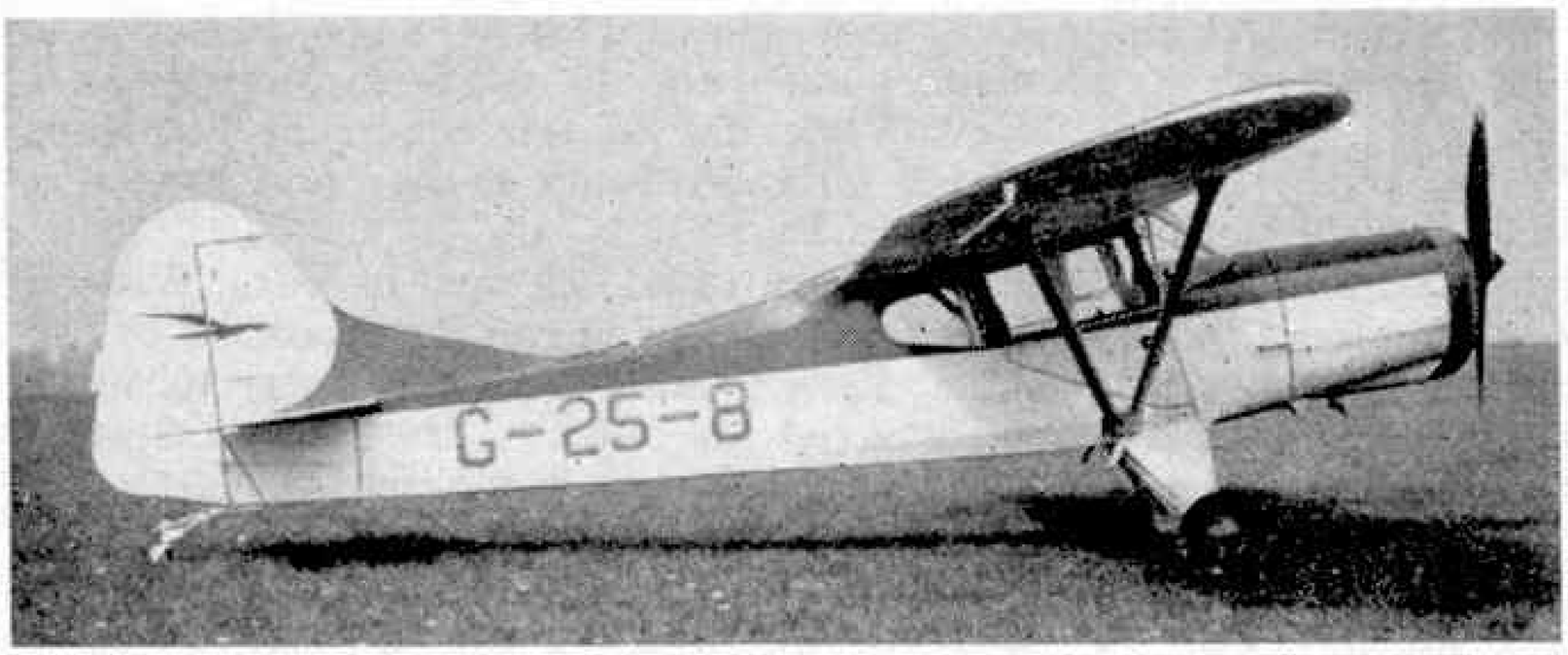
dealt with an average of more than 1,600 outgoing passengers during this three-hour period—one every seven seconds—and with them at least 20 tons of baggage. Yet this is only half the story, for at the same time many other B.E.A. aircraft were heading towards London from continental airports. In fact, more than half of the airline's fleet of 62 Viscounts, six Comets 4B's and 24 Pionair DC–3's was airborne at this time each day.

ISRAELI TRAINER

In general design the Fouga Magister two-seat jet trainer shown in the upper illustration on this page is no different from hundreds of others serving with the Air Forces of France, Western Germany, Belgium and Finland. It is, however, unique in being the first aeroplane produced by Israel Aircraft Industries Ltd., of Tel Aviv.

Bearing the six-pointed Star of David on its rear fuselage, this Magister is one of many which will be used as trainers by the Israel Air Force. It is powered by two 880 lb. thrust Turbomeca Marboré turbojets, which give it a top speed of 443 m.p.h., and can be fitted with guns, bombs, rockets or anti-tank missiles for weapon training or light ground attack duties.





(Above) Fouga Magister jet trainer, the first aeroplane produced by Israel Aircraft Industries Ltd., Tel Aviv. (Below) One of the new Auster "D" series lightplanes.

OPERATION HERMIT

Although they are designed primarily as fire-fighting and rescue helicopters, the H–43B Huskies built by Kaman for the U.S.A.F. are quite capable of other kinds of mercy missions. This was demonstrated when one was used to carry food to a snow-bound hermit near Bellevue, Nebraska.

Old Jim Baldwin, as the hermit is known, has lived in a cave in rough Nebraska country for 40 years. This year, heavy snows in the area caused concern for Old Jim's well-being. So an H–43B was sent to his hermitage with 50 lb. of food. He was reported to be hale and hearty, although he had lost a considerable amount of weight during the hardest winter he had known in his four decades of living outside.

ASSORTED AUSTERS

The famous little Auster family of light-planes has had a face-lift. In place of the former Aiglet, Autocar and Alpine, the company is producing a new range of high-wing monoplanes known as the "D" series, with improved streamlining, more comfortable cabins and metal wings—instead of wooden ones—to make them more suitable for flying in hot countries.

All machines in the "D" series have the same basic airframe, and all are powered by one of the popular and highly-efficient American Lycoming range of four-cylinder, horizontally-opposed, air-cooled engines. Eleven different basic models are offered, with two, three or four seats, wings that span either 32 ft. or 36 ft. and engines of from 108 to 180 h.p. The aircraft illustrated is a D.4/108, with two seats, 36-ft. wings and the smallest engine. At the other extreme is the D.6/180, with four seats, 36-ft. wings and a 180 h p. engine.

Naturally, it is not possible to fit the 108 h.p. Lycoming or 32-ft. wings to the four-seaters; but a two-seater with short-span wings and a 180 h.p. engine is offered as a really "hot" aerobatic machine for sporty pilots.

R.A.F. AIRLIFTS ENTIRE TATTOO

More than 500 men and 13,000 lb. of equipment were flown by R.A.F. Transport Command across the Atlantic for the Military Tournament and Tattoo which formed a highlight of the recent British Exhibition in New York. The airlift took four days and nights and was treated as a training exercise. Comet and Britannia aircraft from ordinary front-line squadrons were used.

Passengers included the Band of the Royal Marines, Marine drill and assault course teams, contingents from famous Army regiments such as the Brigade of Guards, the pipe bands of three Scottish regiments, the band of the 2nd Green Jackets, K.R.R.C., a Royal Corps of Signals motor-cycle display team, an R.A.F. Regiment Colour Guard and Band and an R.A.F. physical training display team.

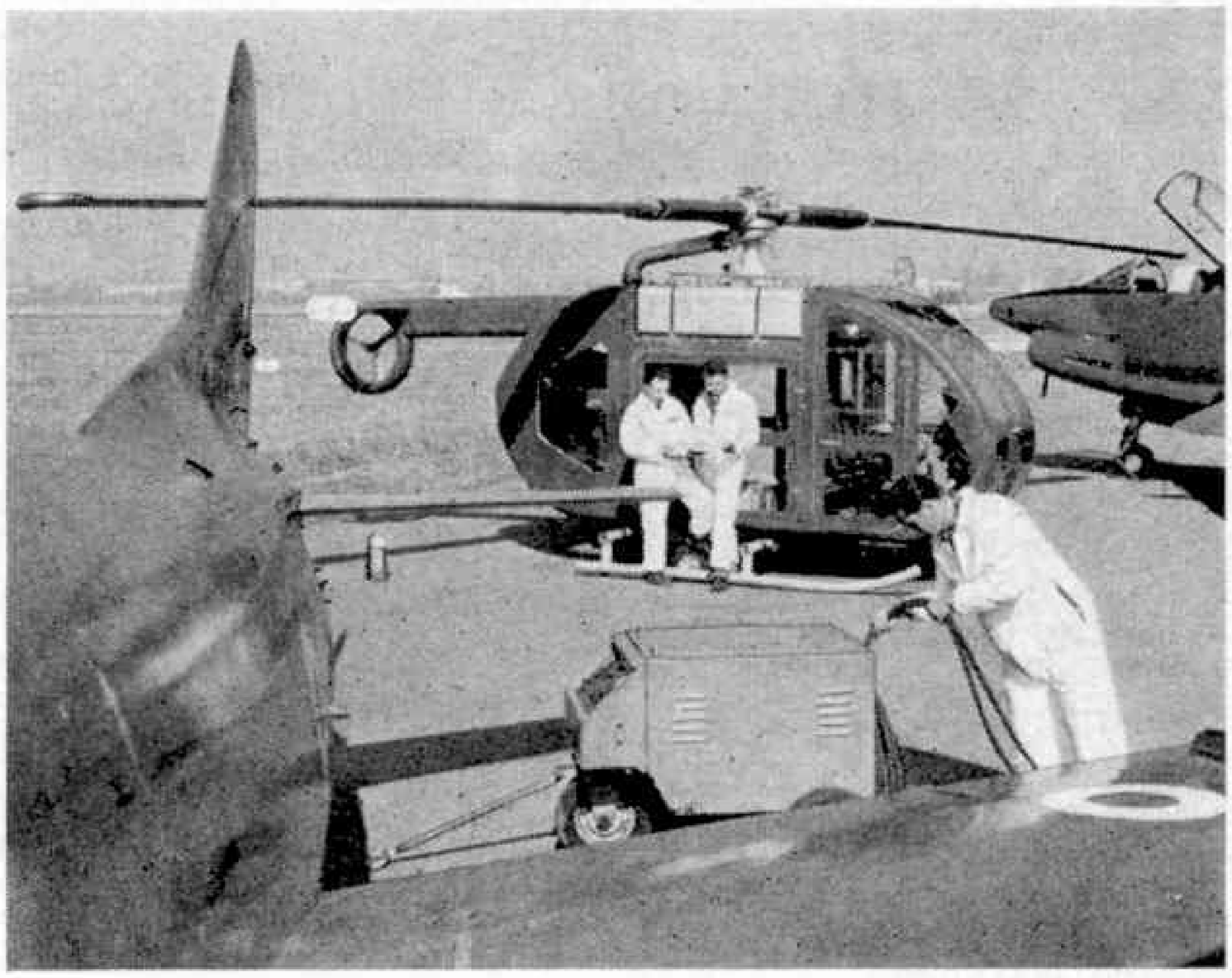
SPACE-SCOOTER TESTED

The gap between fact and science fiction is narrowed still further by the news that U.S. rocket scientists have perfected a baby rocket-engine no bigger than a milk bottle. The rocket's main job is to alter the orbits of Earth satellites, but it would be ideal for use as a "space-scooter", enabling men to travel quickly and easily from one space-ship or space-station to another in orbit.

FIAT'S FIRST HELICOPTER

The Fiat Model 7002, illustrated on this page, is the first helicopter designed and built by the Italian Fiat company, which is better known for its single-seat fighters. The machine is powered by a 530 h.p. Fiat 4700 turbo-generator. This turns the two-blade rotor by squirting compressed air from blade-tip nozzles, just as a garden sprinkler is turned by water pressure, without any form of combustion in the nozzles.

Two pilots, or a pilot and passenger, sit side-by-side at the front of the tadpole-shaped fuselage. Five more passengers can be accommodated in the roomy main cabin, but very large doors are fitted so that the aircraft is equally suitable for hauling bulky freight. In an ambulance role, the Fiat 7002 will carry two stretchers inside the cabin and two outside.



The Fiat Model 7002, the first helicopter designed and built by the Italian Fiat company. It is described on this page.

MOVING HOUSE BY AIR

A new chapter in air-age living was written on June 17 with the arrival at a New York flat of ten rooms of furniture which only 36 hours earlier had graced a home in Paris.

The furniture belongs to Mr. Willard Weeks, president of the Paris edition of the *New York Herald Tribune*, who recently transferred his office to the United States. When he left his home on the previous morning everything was still in its usual place. Shortly afterwards, a group of vans arrived, and whisked the furniture to Orly Airport. There, it was packed into big pre-fabricated containers and loaded aboard a Seaboard & Western Airlines freight-plane.

While Mr. Weeks and his family crossed the Atlantic leisurely by ship, the furniture was flown to America, unloaded and installed in his New York home according to plans drawn up beforehand. When the family arrived, they were able to begin life in their new home without any of the discomforts and muddle that usually accompany a removal.

From Our Readers

This page is reserved for articles from our readers. Contributions not exceeding 500 words in length are invited on any subject of which the writer has special knowledge or experience. These should be written neatly on one side of the paper only, and should be accompanied if possible by original photographs for use as illustrations. Articles published will be paid for. Statements in articles submitted are accepted as being in good faith, but the Editor takes no responsibility for their accuracy.

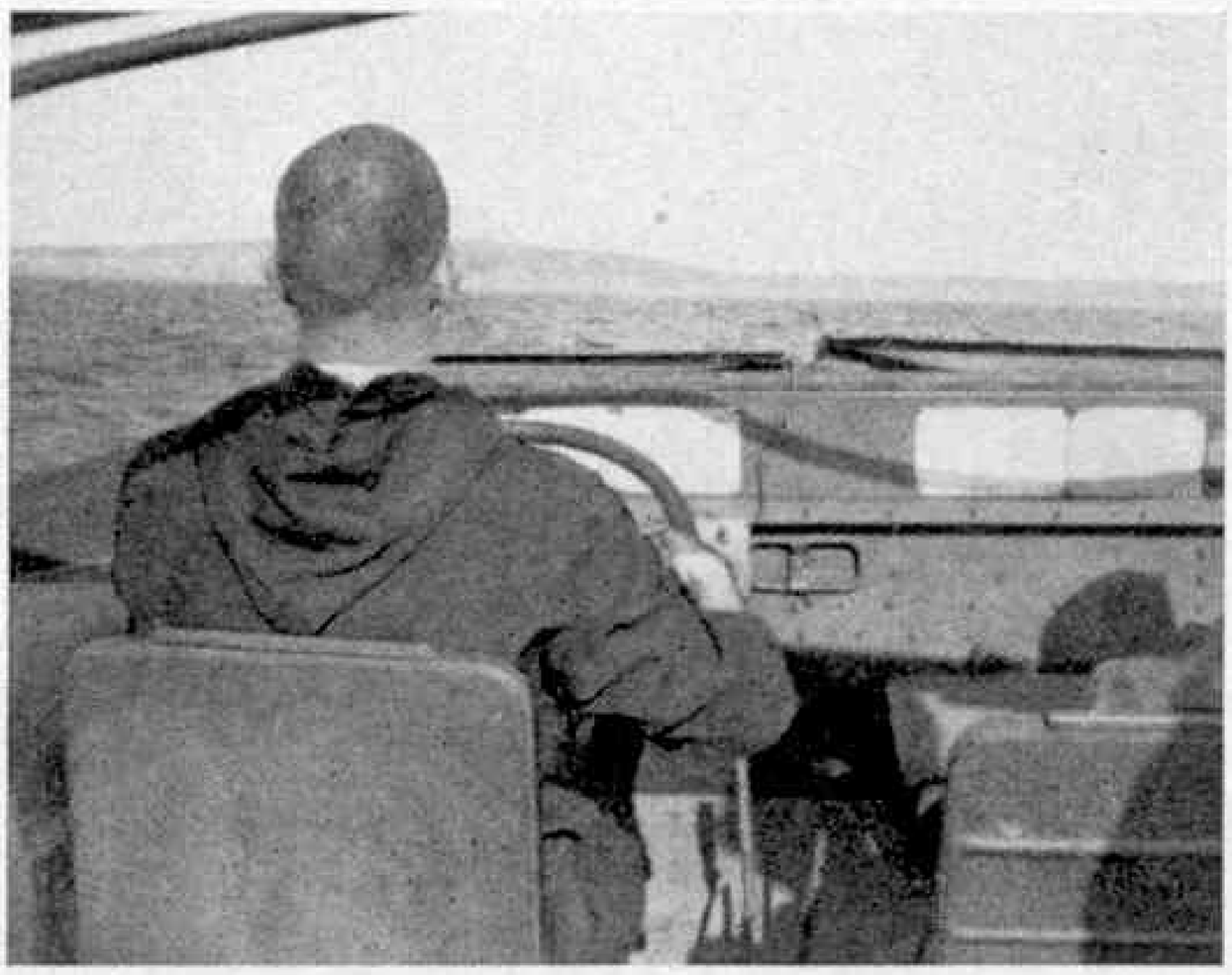
THE TATTINGSTONE WONDER

IN some parts of England are to be found buildings which seem to serve no apparent purpose. Usually they have been erected by some eccentric person who had some strange idea in his or her head when it was built. People in the localities concerned have not been slow to give such buildings a name and they have usually been designated "Follies". One such structure, at Tattingstone in Suffolk, is however, not known as a Folly but is called the Tattingstone Wonder. The name was derived from a remark made by the local squire who built it. He is reported as saying that as people often wondered at nothing, he would give them something to wonder at.

Squire White, who lived at Tattingstone, in the eighteenth century, wanted to erect some new cottages for his labourers, but did not wish to spoil the view from his own house. He decided to camouflage them, and chose to do this behind the façade of a church. He then had built, facing his own house, three walls of a church tower, one side wall of a church and one end wall. The cottages were then built behind this facade, the walls already erected serving as the back of the cottages.

The rear view of the Tattingstone Wonder.

HOLMES L. HALL (Dovercourt).



With a monk at the controls, the D.U.K.W. crosses Caldy Strait.

LAND-SEA JOURNEY

At first glance the lower photograph on this page does not seem to have any unusual features about it. Yet closer study reveals an unusual combination, for it is a picture of a former American Army D.U.K.W. crossing a strait driven by a monk.

This vehicle is to be seen operating on Caldy Island, just off the Pembrokeshire coast. There is an abbey on the island and the monks have two D.U.K.W.'s which they use, when the weather is too rough for a conventional type boat, to take their farm produce to the mainland. After crossing the strait, the craft moves swiftly along the beach on its six wheels, all of which are driven.

S. J. McCARTHY (Liverpool).

SPACE NOTES

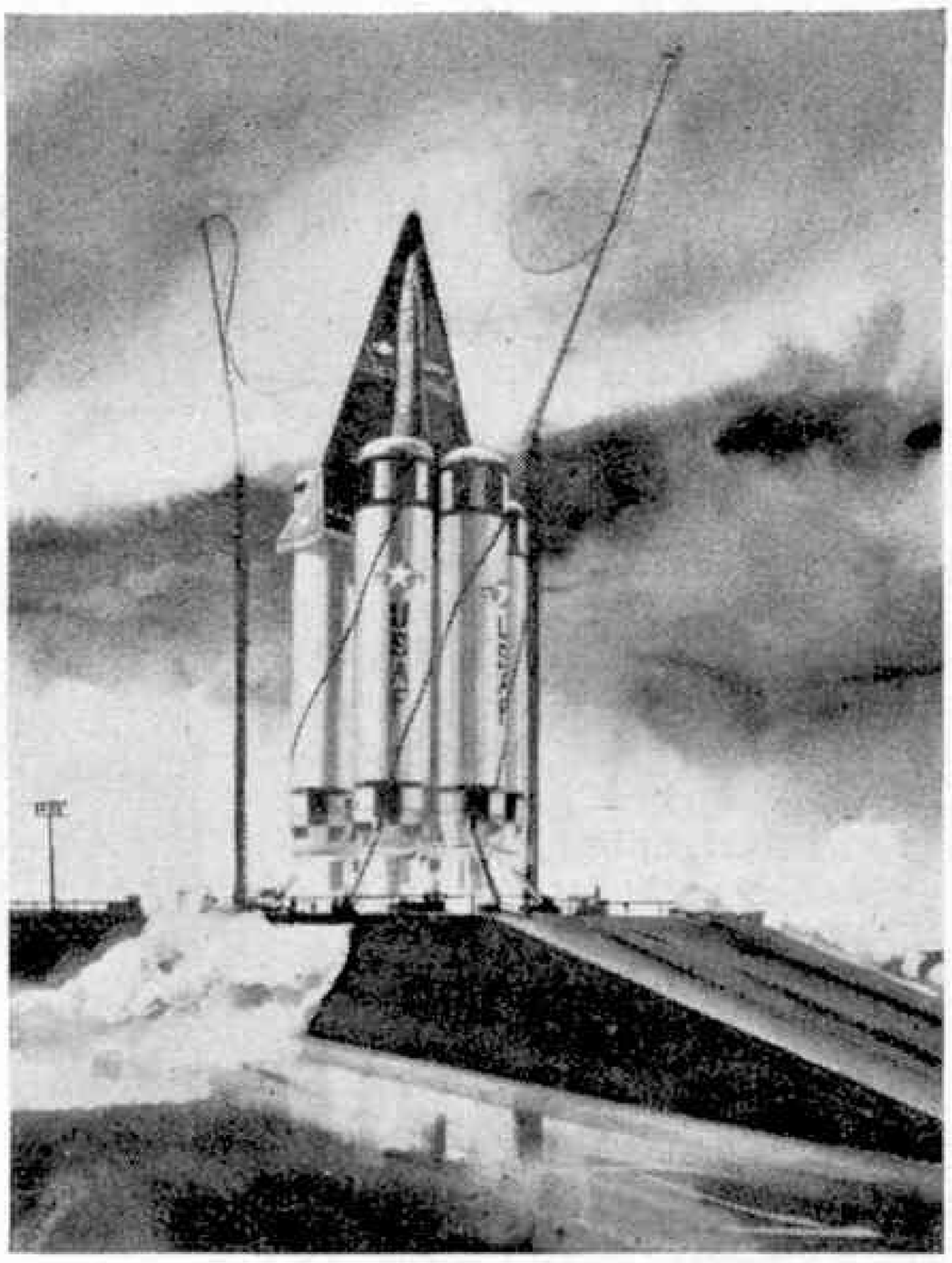
Flight to Mars

THE design of large-scale engineering projects usually follows much the same pattern. First of all the idea is thought about in a very general way; often, indeed, only a few people believe the idea is practical. This stage can last for decades with hardly any technical progress being made. The next stage is the acceptance of the idea and a study, in fairly general terms, of the problems involved and the ways in which they may be overcome. Finally, some person or organisation decides that the particular project is really needed and puts up the money for detailed design and manufacture.

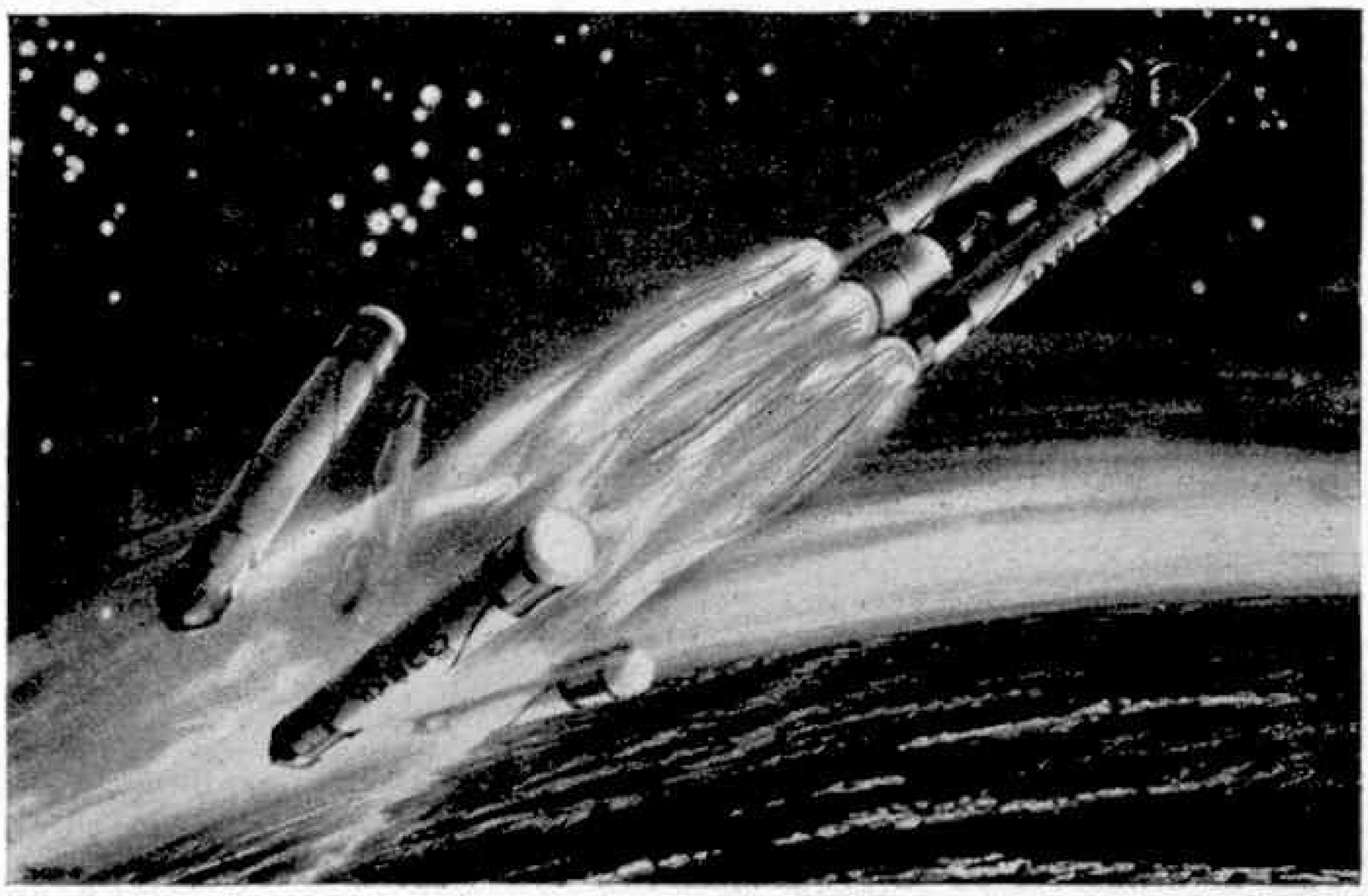
By
J. Humphries, B.Sc. (Eng.)
A.M.I.Mech.E., A.F.R.Ae.S.

Space flight is progressing in just this way. Artificial satellites have been discussed in general terms ever since the early 'twenties but it was not until the middle 'forties that serious project studies of instrument-carrying satellites were really started on. By the time such a project was really feasible—the middle 'fifties—the financial support was forthcoming and the detail design and manufacture was achieved within quite a short space of time.

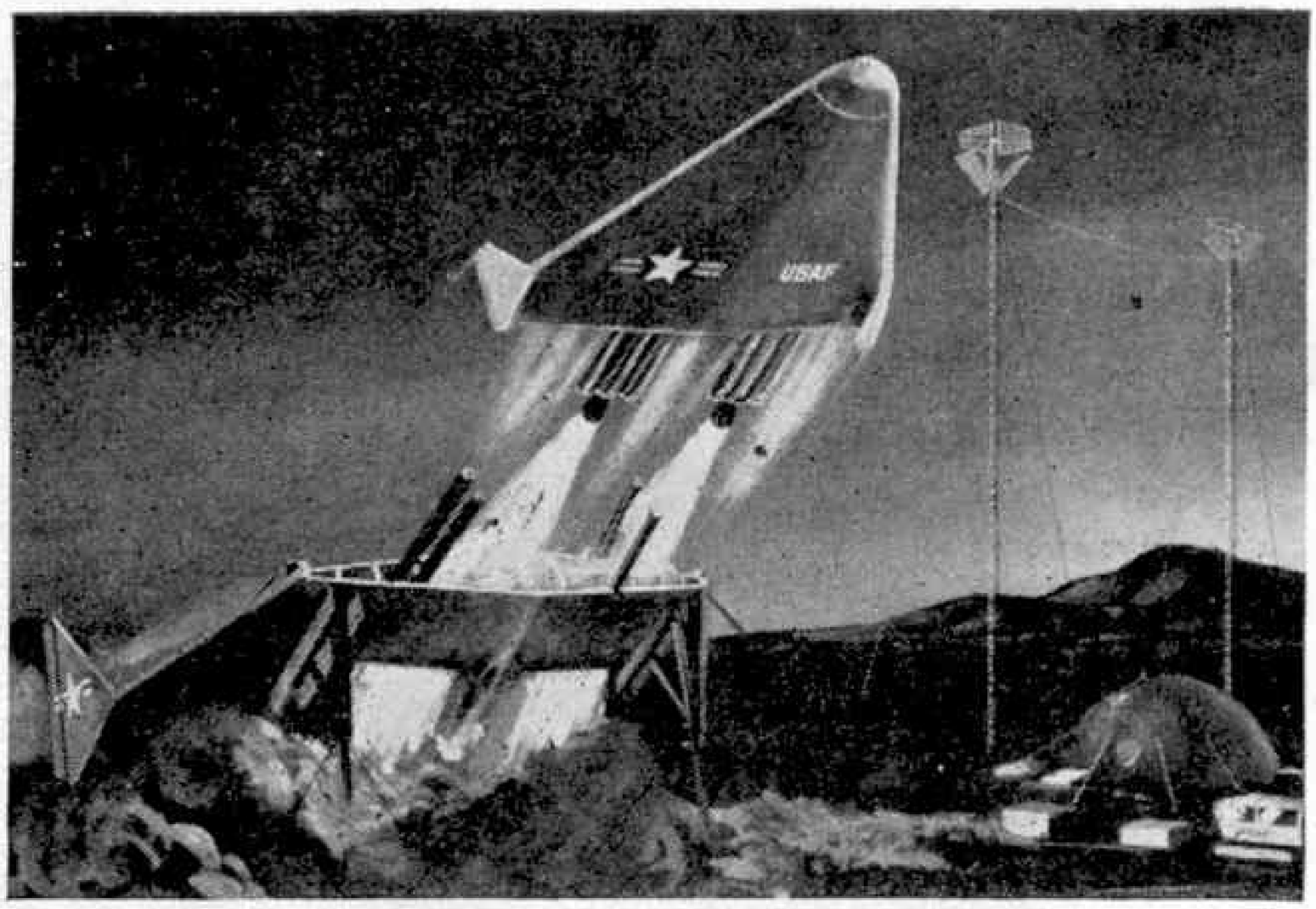
Instrument-carrying satellites are now an every-day affair and the man-carrying satellite is on the last lap of manufacture. As for more advanced projects, instrument-carrying space probes have already been launched and it is almost certain that the Russians have a man-carrying, deep space vehicle on



The seven booster motors start to lift a deep space vehicle from Earth.



Motors and tanks are jettisoned near the end of the first propulsion stage.



The rear end of the landing vehicle is used as a launching ramp on leaving Mars.

the drawing board if not in actual production. The next step, that of landing men on the moon, is rapidly approaching the stage when final plans will be decided on, but manned landings on the other planets are still in the "project design" stage. We can expect, within the next five years, to see a spate of detailed schemes for landing exploration parties on Mars and Venus.

A proposal to land an eight-man expedition on Mars by 1972 has recently been made by Philip Bono, a space vehicle designer at the Boeing Airplane Company. The vehicle at take-off from Earth would be 248 feet high (somewhat taller than Nelson's Monument in Trafalgar Square) and 82 feet wide and would weigh over 4,000 tons. In addition to the eight men the vehicle would carry 40 tons of supplies, including four tons of exploratory equipment, a two-ton ground vehicle and a one-ton collapsible shelter for use on Mars.

259-Day journey

Seven liquid oxygen liquid hydrogen rocket motors giving a total thrust of 5,000 tons would boost the vehicle into space, and into its orbit to Mars, before being discarded. After a 259-day journey four 20,000 lb. thrust engines would be used to slow the vehicle down sufficiently to allow it to take up an orbit around Mars. The landing glider would then be separated from the main living quarters and engines and brought down to a landing on skids by the combined use of the wings, a drogue chute and three retro-rockets.

The headquarters during the 479-day exploration period would be an inflatable, hemispherical shelter with electric power supplied by a nuclear auxiliary unit installed a little way from the camp. For the return trip the landing glider would have its own built-in launching ramp. There would be a separation joint so that the rear portion could be anchored to the ground. Two of the three rocket motors used for landing would be installed in the front half and used to boost the smaller glider into orbit. After burn-out, the launching stage would be jettisoned and small control rockets used to achieve a rendezvous with the orbiting living compartment and main rocket motors. After recoupling, the vehicle would begin its 259-day journey back to an orbit around the Earth. Again the glider would be uncoupled and would return to the Earth's surface over two and a half years after take-off.

Space food

On such a journey as that just described large quantities of food and water will be consumed. To carry all the requirements will obviously involve a tremendous weight penalty. In parallel with the engineering design work research is also going forward to provide the most efficient means of feeding in space. Four main lines of food are now being developed for the first short flights; semi-solid food in tubes; tablet foods, such as bacon tablets and cheese tablets; solid "rod" foods and dehydrated foods. For slightly longer flights the U.S. Air Force is developing food containers that can be eaten—an obvious saving in weight and space!

Enormous saving

For the longer flights to the planets it will be necessary to recycle all waste products in a closed system. In theory such a system could be made to work indefinitely with no input but energy, which could be derived from the Sun. In practice, some supplies will always need to be carried but even the recovery of water would effect an enormous saving in weight in interplanetary space ships. Always, in space (as in air) travel, ways are being sought to reduce the load.

A GIANT OF THE SEAS

Innovations on the Canberra

By K. Slader

The launch of the 45,000-ton P. & O. passenger liner "Canberra" at the Belfast yard of Harland and Wolff, Ltd. Photograph: P. & O. S. N. Co.

THE largest ship ever to serve the route from the United Kingdom to Australia, and thence across the Pacific to the west coast of America. That will be the proud claim of the intriguing new P. & O. passenger liner *Canberra* when, in the middle of next year, she makes her maiden voyage across the world. A ship designed for the convenience of passengers she will be a floating exhibition of British creative achievement.

She was launched on March 16 at the Belfast yard of Harland and Wolff, Ltd., by Dame Pattie Menzies, G.B.E, wife of the Australian Prime Minister. Now in the fitting-out basin *Canberra* is still in a far from complete state, yet already many unusual features are exhibited by this 45,000-ton ship.

The bugbear of the naval architect, weight aloft, is being countered by two bold devices. One is that the superstructure is being made of aluminium and in all about 1,000 tons will be used on board. It gives a saving in weight of almost double that figure, and can be compared with 13,500 tons of steel used on the shell alone. Unusual, too, is the position of the lifeboats. Instead of being on the upper deck, which is the conventional place, they are on the promenade deck, three decks nearer the water.

On the upper decks, the twin streamlined smoke stacks, an outstanding characteristic of the ship, will be placed well aft so that any smuts from the oil burners are thrown clear of the deck.

Passengers will be able to sit at ease on the upper deck, snugly screened from the wind as the ship moves swiftly along at 27½ knots.

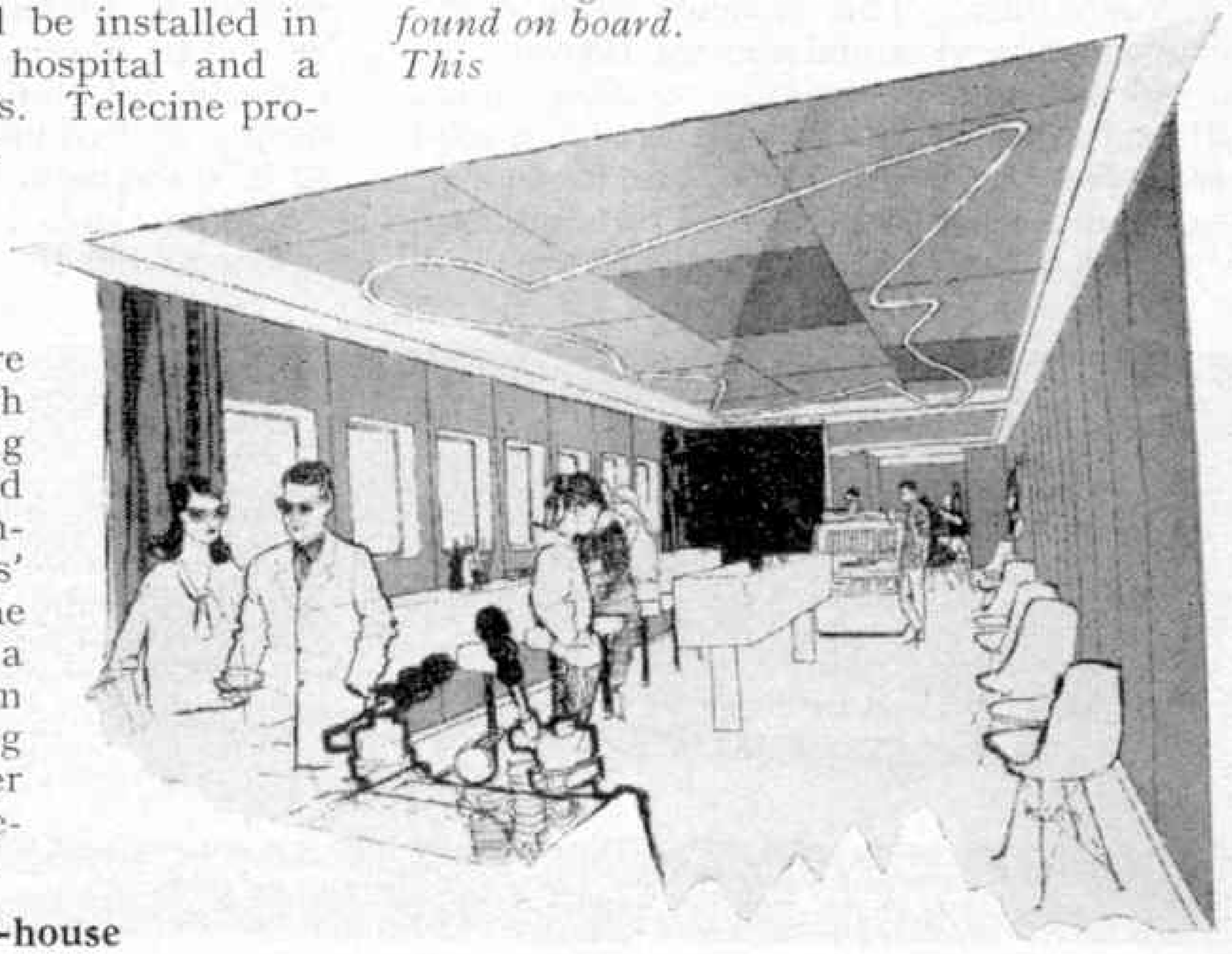
There is ample space for deck games and there are four swimming baths on board,

A SYMBOLIC NAME

Giving their reason for choosing the name Canberra for the new ship, her owners say, "The name Canberra was chosen because it symbolises the part which the P. & O. Lines have played in the development of Australian trade, and commerce overseas, for the last century, and the growing importance in world affairs both of Australia and her capital city Canberra. Happily the name means 'The Meeting Place' in the language of Australia's Aborigines, and this ship will be the meeting place of the peoples of the world."

one of which is reserved for the crew. *Canberra* also carries a theatre two decks high. Not only can wide screen stereophonic films be shown, but live shows also can be produced. Television will be installed in some public rooms, the hospital and a number of first-class cabins. Telecine programmes will be shown at sea on closed circuit television; in port, local programmes will be picked up.

Boys and girls alike are carefully catered for, with two play rooms containing games, toys, tricycles, and pedal cars, as well as mechanical toys, dolls and dolls' houses. Leading off from the first-class play room is a nursery, and also a room provided with drawing boards, pencils and paper for those who fancy something a little more serious.



This sketch shows the proposed Teenagers Room—Tourist class, designed by John Wright, A.A.dip. Hons., A.R.I.B.A. Photograph by courtesy of P. & O. S. N. Co.

Miniature wheel-house

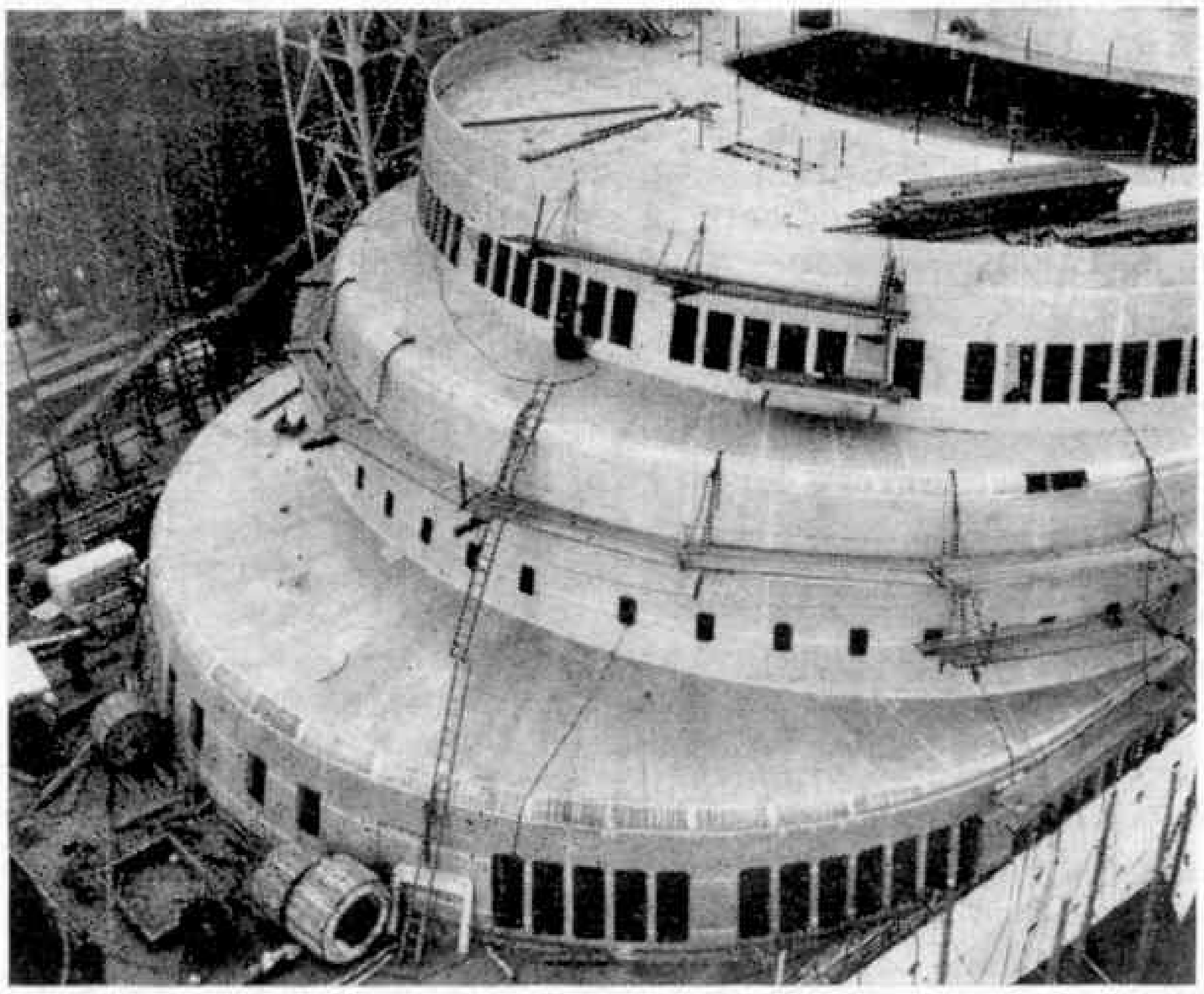
Outside is the playground with a chute and merry-go-round and in one corner is a space rocket, with a real periscope, through which one can see all that happens on the deck above.

The tourist class play room has a miniature wheel-house with its own wheel, astern of a binnacle complete with cover and a real compass. There is also a locomotive, with tender big enough for riding on, running two-thirds the length of the forward bulkhead.

A teenage room is also to be found on board. This has been nicknamed the "rumpus room", and is equipped with soda fountain, juke box and indestructible floors and walls. It is soundproof, too!

This fine new ship has accommodation for 530 first-class passengers, and 1,685 tourist-class, while her crew will total close on 1,000.

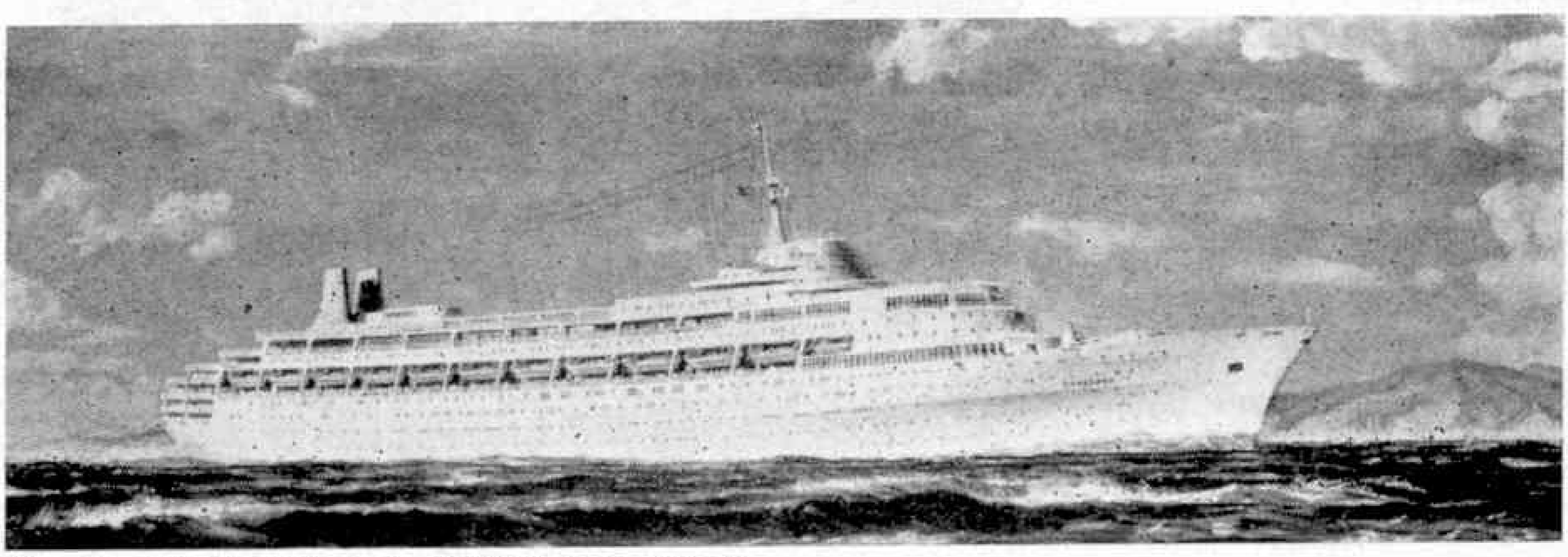
Rolling will not present any obstacles as two sets of stabilizers have been fitted. These are small fins housed below the water line inside the vessel. When required for use they can be run out into position and operated by being inclined to the direction of travel. The leading edge on one side is inclined upwards, and on the other side downwards, causing the ship to heel towards the latter. They are operated by a gyroscope in such a way that the angle of heel exactly counteracts the angle of roll. When stabilizers were first fitted to big ships it was found that an immediate and considerable



The huge observation lounge built high up in the bridge tower—one of the new features in "Canberra"—is seen under construction. Central Press picture.

lessening of crockery bills was one advantage!

There will be natural lighting in many of *Canberra's* inside cabins, as well as the outboard ones. This is made possible by incorporating verandahs in the layout, and it will also give a sea view to many more cabins than is usual. Plastics are to be used extensively, and will replace paint internally, except in a few places, as well as being used as a deck covering. Many cabin fittings will



The streamlined smokestacks of "Canberra", set aft, are clearly seen in this impression of the new vessel by J. Stobart, S.M.A. Photograph: P. & O. S. N. Co.

be made of plastic to blend with the modern decorations.

Some of the items to be found in all cabins will be two-programme radios, special taps supplying iced water, and air conditioning.

Loading and unloading of the cargo will be through the ship's side, instead of through hatchways in the upper deck, giving more room for passengers, for there is no cargo handling gear on deck and, of course, no hatches. A movable platform can be loaded with anything from a small parcel to a car and conveyed from the quayside up to the cargo opening, into the ship and along to the point of discharge.

Passengers' luggage will be loaded on to one of two conveyor belts. One goes to an elevator where bags required on voyage are taken to the appropriate deck; the other takes bags straight down to the baggage room, where they are stored by the baggage room conveyor. All these work on the push button principle and will greatly reduce the waiting time of passengers seeing their luggage aboard.

Engine room TV link

The engines are turbo-electric, and are designed to create a shaft horse-power of 85,000. The boilers are directly below the smokestacks, and the engine room is immediately ahead of the boilers. This means that most of the ship is well away from the noise of the engines.

The chief engineer of a large liner often wishes to be in two (or more) places at once. Seated in his office on board the *Canberra* he will be able to see what is happening in any one of the four machinery compartments simply by turning a knob, for he is connected to them by an internal television circuit. This is particularly valuable in an emergency, or in fog, when the watertight doors are closed.

Manœuvring in a confined space has been simplified by installing bow propellers working in a transverse tunnel, allowing the bows to be swung easily to port or starboard even when the ship is travelling too slowly to respond to the rudder position.

The *Canberra* is truly "a ship that shapes the future" as her owners so proudly proclaim. May God protect all who sail or serve in her.

THE TRAMWAYS OF HUDDERSFIELD

By Roy Brook

This is a well-produced history of a British tramway system of the medium sized category. Huddersfield has had horse, steam and electric trams, the system commencing in 1883. The inevitable electrification began in 1900, and the trams served the town until 1940. At its maximum extent, there were 140 trams operating over 39 miles of route.

The book contains 120 pages, printed in large clear type. There are numerous illustrations, and route maps showing track arrangements, of the system in three different stages of development. Routes and tickets are also dealt with, all contributing to an interesting story.

Copies can be obtained from the author, R. Brook, of 12 Hawthorne Terrace, Crosland Moor, Huddersfield, price 10/– post free. Profits from the sale will be donated to The Tramway Museum Society, to aid their Museum project at Crich, Derbyshire. **J.W.G.**

Railway Notes

By R. A. H. Weight

A trip on the Tees-Tyne Pullman

THIS fast, high-grade express traversing the Anglo-Scottish East Coast route provides on ordinary weekdays a service between London and Darlington, close to Tees-side, in less than four hours and Newcastle in a little over four and a half. A York stop is included one way in the timing, requiring overall averages of about a mile a minute. During recent years in these notes I have reported several excellent runs to or from King's Cross of my own, or my friends', timing, but the brilliant performance now described happened to be my first northbound Tees-Tyne journey.

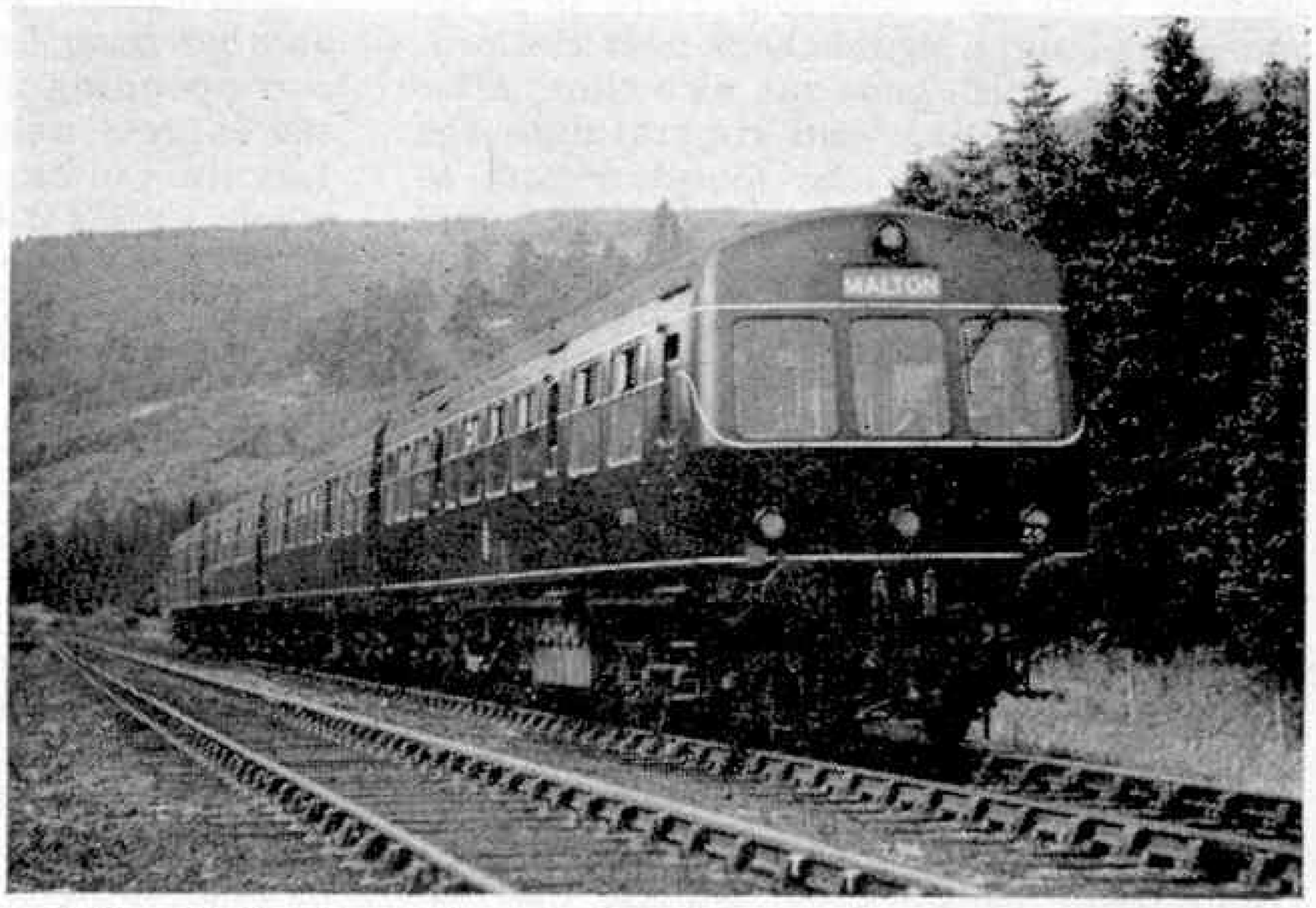
We had an extra car on, increasing the normal load by more than 40 tons, so that with nine Pullmans, well filled for the most part, luggage, staff and stores, etc., the gross load was about 380 tons behind the non-corridor tender of A4 4–6–2, No. 60003, *Andrew K. McCosh*. This engine is stationed at King's Cross depot, like the able footplate crew: Driver Davis and Fireman Graves, who were accompanied by Loco. Inspector Hart.

We were over a minute late in starting, just after 4.51 p.m. There were two slowings owing to trackwork within the first 13 miles where there is a good deal of climbing, the second, at Potters Bar being particularly severe. In consequence we were four minutes down at Hatfield and three at Hitchin, although my driver friend on a splendid locomotive was evidently determined to be on the right side of time as soon as possible.

The 27 mostly favourable miles 'twixt Hitchin and Huntingdon were reeled off in less than 19 minutes at an average of 86 m.p.h., with speed sustained in the 88–95 m.p.h. range for fully 20 miles until easing for riverside curves near Offord, Hunts. On passing slowly through Peterborough, 76½ miles in 73½ minutes at 6.5 p.m., the flyer was exactly to time.

Up the long rise to Stoke, Lincs., before Grantham, the minimum was 63½ m.p.h., followed by an 80 before a short slowing where relaying was in progress south of Newark—120 miles passed in 114½ minutes from King's Cross. There was a much more severe slack where Scrooby viaduct was under repair, near the village associated long ago with the Pilgrim Fathers. We came through Doncaster at 7.25, then followed a sustained 80 on the level. We eased past Selby with its curve and swing bridge—time in hand, now—and made a triumphant arrival at one of the long York platforms two minutes early in 186½ minutes or just over three hours from London—188¼ miles.

The 44 miles forward to Darlington over



A Malton-Whitby diesel train at Goathland, in beautiful moorland scenery. This type of train, with its wide windows, affords splendid views in such surroundings. Photograph by C. Ord.

a fairly level and straight course are allowed only 44 minutes start to stop, but that provides a margin with engines and trains of this category. We blazed away, accelerating gradually to 85 m.p.h. around Thirsk, sweeping over the well-laid-out junctions at Northallerton, and covering 30 miles in 29½ minutes. Thirteen more minutes sufficed to carry us over the remaining 14 miles, with an easing after crossing the Tees, and so on to the platform loop at Darlington where we halted in 41 minutes from York start, three minutes before time, at 8.43.

The 232¼ miles from London had been completed in less than 232 minutes including York stop, the four extra slowings mentioned and a signal check near Retford. This grand finish gave me nice time, after alighting, to thank and congratulate the splendid fellows on the footplate and to wave them off when they began the final 36-mile stage on to Newcastle as dusk was falling. The run was made in extreme comfort, second class, the dinner was first-rate, and the train Conductor and car attendants concerned were all most helpful.

No. 60139 "Sea Eagle" hurries through Oakleigh Park on its non-stop run from Darlington to King's Cross with the up "Tees-Tyne Pullman" in this photograph by M. W. Earley.

Important junctions

Doncaster is an important junction on the East Coast route, with diverging lines at the north end towards Leeds, Hull and Grimsby; to the South for Sheffield, etc., and to East Anglia. I saw there, among some others, A3 Pacifics *St. Gatien* and *Pretty Polly* respectively passing on a Sunderland–King's Cross express and the northbound *Talisman;* A4 *Quicksilver* on the southbound *Tees-Tyne;* a K1 2–6–0 just out from the neighbouring Locomotive Works; A4 *Silver Link* and several Moguls, etc. waiting to go in for overhaul. B1 4–6–0 No. 61065, had a very unofficial name, *Airlie Bird,* chalked on the side of the smoke-box! Coming from York were southbound freights headed by a K1, a class 9 2–10–0, also a B16 4–6–0 double-heading with a K3 2–6–0, representing enormous power.

While observing in the great station at York, 32 miles further north, a focal point of so many through and connecting services, I noted several almost new type 4 D200 class diesels, one, for example, working through from Edinburgh to York on the 11.0 a.m. express from Waverley (taken forward to King's Cross by A2 *Sun Stream*); another from London to Newcastle on the corresponding northbound 11.0 a.m. Scottish express; a third bringing the Newcastle–Lincoln–Colchester train as far as York, whence a V2 2–6–2 took charge.

A Newcastle–Sheffield–Bristol express was brought in by A3 No. 60069 *Sceptre* and taken out by L.M.R. Jubilee 4–6–0 No. 45651 *Shovell.* A4 *Seagull* passed through majestically with *The Flying Scotsman,* non-stop King's Cross–Newcastle.

Diesel railcar sets familiar in many parts of the country now operate most of the N.E.R. branch and local services. They are also used for longer express, inter-town and main or secondary line through runs. Some of their routes traverse lovely and remarkably varied scenery, deserving to be more widely known and patronised.

The 65-mile journey from Darlington which I enjoyed on a clear day last July, in a 2-car unit, was superb. Mounting the steep climbs at 40 m.p.h. and over, we

passed some of the wildest and finest moorland and valley scenery in Co. Durham and Westmorland, going over England's highest through line summit—1,370 ft. above sea level—at Stainmore. It is sad to learn that owing to financial loss part of this wonderful route across the "top of England" may be closed. Having travelled some distance close to the Midland Settle–Carlisle tracks of the St. Pancras main line, we reached those of the West Coast route from Euston just before Penrith, seeing Jubilee and Royal Scot 4–6–0s passing on fast southbound trains.

On again, over L.M.R., mostly single, line in similar diesel cars with full front views and other sightseeing facilities, we passed close to some of the mountains, waters, valleys and uplands at the northern end of the Lake District. So we travelled to Keswick, Cockermouth, alongside Bassenthwaite Lake for some miles, thence into Workington on the Cumberland coast with its docks, and one-time separately owned mineral or local railways that were busy when mining thereabout was more active. We continued by the side of the sea, to Maryport, later passing through farming country not far from the Solway Firth. With some class 4 0–6–0s and class 2 2–6–0s, also diesels, to be seen on the way we were soon at the famous Border City of Carlisle, with its large and busy station.

No. 5041 "Tiverton Castle" alongside class 9 2-10-0 No. 92004 at Swindon. Photograph by M. G. Martin.

Locomotive news

Recent additions to diesel-electric motive power for main line service include further batches of the 1 Co–Co 1, type 4, D200 class, allocated to L.M.R. Western Division sheds; to Haymarket, (Edinburgh) Scottish Region, and to Gateshead (Newcastle) N.E.R., etc. Duties of the latter usually include haulage of the *Car Sleeper* (night) and *"Anglo-Scottish Car Carrier"* (day) and passenger express services between London and Newcastle, also sometimes north thereof.

In addition to L.M.R. No. D210, recently named *Empress of Britain*, other liner names are expected to be adopted. At the time of writing Type 3, 1,550 h.p. S.R. locomotives have been noted up to No. D6515 and they are working a number of the fast Charing Cross–Folkestone–Dover line trains; Brush A1A–A1A, type 2, numbered D5610–23 and so on, have appeared on the Eastern Region, as well as additional representatives of other classes.

New W.R. type 4 diesel-hydraulic locomotives are Nos. D822, *Hercules;* D823, *Hermes;* D833, *Panther*. Construction also continues of the type 2 D6320 series, mainly shedded at Laira, Plymouth.

More Bo–Bo electric units have arrived on the L.M.R., numbered in the E3000 group. Similarly, Nos. E5017 and upward went to S.R.

Fresh naming of steam locomotives recently reported was as follows:—B.R. class 5 4–6–0 on S.R.: Nos. 73084, *Tintagel*, 73086, *The Green Knight*, 73110, *The Red Knight*, 73112, *Morgan le Fay*, 73113, *Lyonesse*, 73115, *King Pellinore*, 73118, *King Leodegrance*.

The names *Hector*, *Ulysses*, have been affixed to Bo–Bo electric locomotives numbered respectively 26048, 26057, working on the Sheffield–Manchester line.

More Schools class S.R. 4–4–0s have been painted green. They still run to a limited extent on London–Hastings, and Kent Coast trains, via Tonbridge. They also appear a good deal on the Redhill–Guildford–Reading route on through Midlands, as well as stopping trains; on the Waterloo main lines as well as in various directions from Brighton, and on special trains. More "West Country" and "Battle of Britain" Pacifics are being rebuilt.

MY GONDOLA HAD WINGS

John W. R. Taylor views Venice from the air.

HOW would you like a quick tour of the city?", asked the man in the blue pullover. As the city in question was Venice, can you guess what I replied?

"Climb in then....."

Perhaps I should explain at this stage that the craft I boarded was not a gondola, paddled by an Italian in a straw hat and striped jersey, but a Klemm K1 107C light-plane piloted by Mr. Herwig von Heider of Dusseldorf, Germany. We were both in Italy to attend the eighth International Air Show of Venice, and his main interest in getting me airborne was to demonstrate what a fine little machine the Klemm is. My object, on the other hand, was to take a film of the city from the air, with my cine-camera. As it turned out, we were both completely satisfied!

Network of canals

I strapped myself firmly into the right-hand seat, next to the pilot, and noticed for the first time the roominess of the cabin and the fine all-round view. It was just right for sightseeing and photography. But, of course, much depended on Mr. von Heider's flying. I need not have worried.

After a quick take-off from the grass airport of Nicelli on the Lido island, we headed north at about 800 feet across the lagoon to the main island of Venice. As we cruised along comfortably at about 125 m.p.h., skirting the edge of the city, the network of narrow canals reflected the sunlight like silver ribbons. We were low enough to see the black gondolas, the yellow and red Coca-Cola barges, and the big steamers that take the place of buses in the city whose streets are too narrow, and bridges too hump-backed, for cars or even bicycles.

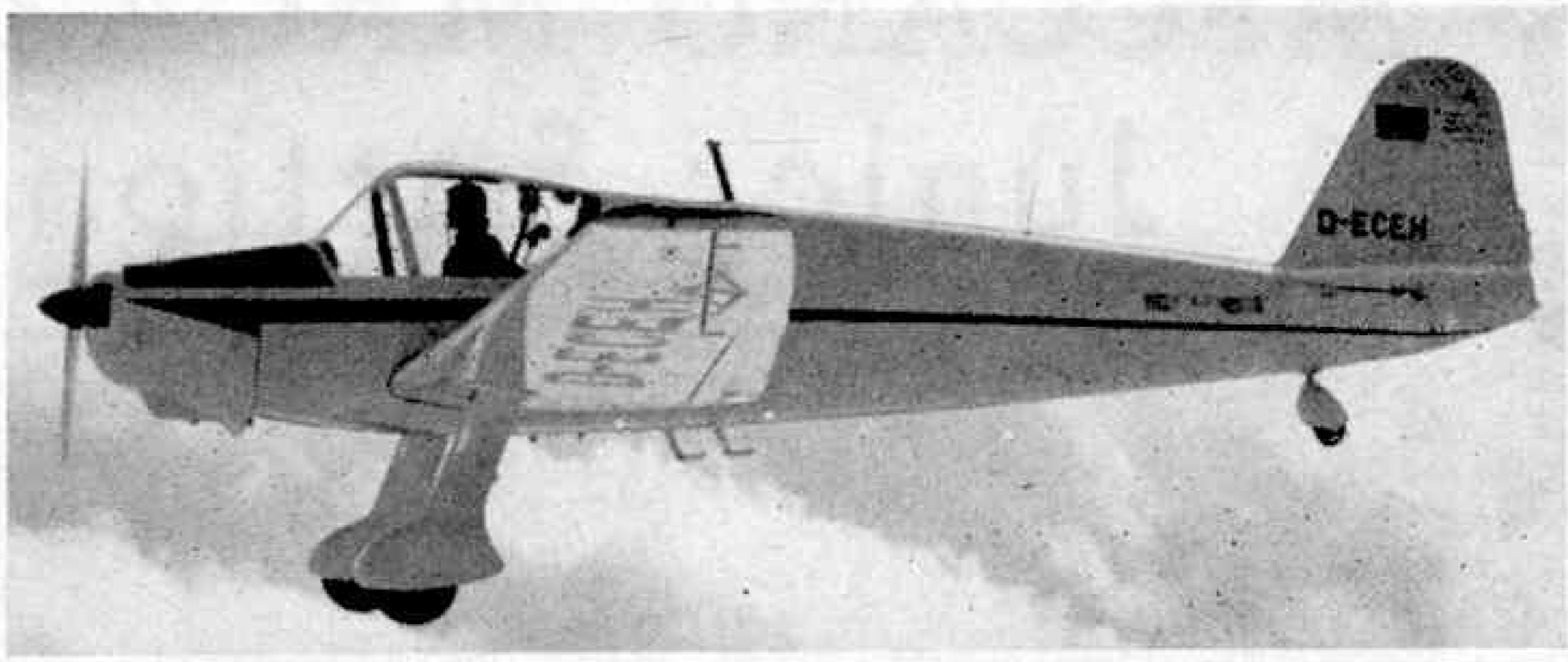
Soon we had passed the railway station on the western side of Venice, the huge garage where visitors leave their cars at the end of the causeway from the mainland, and the docks with their towering cranes. Away in front, St. Mark's Square came into sight. This is the heart of Venice, the subject of millions of picture postcards, with its tall, red-brick bell tower, domed cathedral and handsome palace, at the point where the Grand Canal meets the Canal of St. Mark.

Like most cities, Venice does not welcome low-flying aircraft and I expected I should be able to film the Square only across the water as we passed by. Instead, my pilot said, "We'll go up now and fly over St. Mark's."

A good view

In no time at all we had climbed higher and were heading for the tall bell tower. I clutched my camera to my eye and hoped I would get a good view. I did!!

When we were over the Square, Mr. von Heider put the little aeroplane into an almost vertical bank, with the tip of the starboard wing pointed towards the bell tower so that we seemed to pirouette round it. The clockwork mechanism of my camera whirred away and I wondered what the people on the Square below were thinking. For my part, I had seldom experienced anything so exciting.



The Klemm K1 107C is a three-seater, built of wood and powered by a 150 h.p. Lycoming engine. It is built in Germany by the Bolkow company.

By now my film had been used up and I was able to settle back comfortably to enjoy the ride—and what a trip it was. Nose down, we raced across the lagoon towards the Lido, where some of the Schneider Trophy contests were held in the twenties. Our Klemm rounded the tower of the Excelsior Hotel in a tight vertical bank that would not have disgraced the Supermarine racing seaplanes of those far-off days, and we were soon streaking past the golden beach, with its gaily-coloured bathing huts.

"Watch this," said the pilot, at the same time pushing the throttle wide open and lowering the flaps a little. The Klemm went up like a lift as we turned out to sea and made a wide sweep before coming in to land at Nicelli.

Only 20 minutes had gone by since we took off. Yet I felt that, in that time, I had seen more of the real Venice than many visitors see in a week. And I guessed that Marco Polo, the young Venetian adventurer of the thirteenth century, would have given half his fortune for such a journey.

Visitors who go to Venice by air will soon be reminded of this great traveller the moment they touch down, for the fine new aerodrome being built on reclaimed land just over the water to the north of the city is to be named "Marco Polo Airport." The secondary runway, nearly two miles long, is already being used by Viscounts. Next year the main runway will be open to receive Caravelles and even DC-8 jet-liners. This will be a big improvement, because Nicelli is too small for anything bigger or faster than a Dakota, and the airlines using Viscounts have had to fly into the military airfield of Treviso, nearly an hour's journey from the city.

I was able to photograph the new airport from the air on the day after my flight in the Klemm. This time my mount was an aeroplane named the U.T.V.A. 56 from Yugoslavia, an interesting addition to my experiences of foreign aircraft. It is a neat, all metal monoplane, powered by a 260 h.p. Lycoming engine. It is capable of carrying a pilot and either three passengers, two stretcher patients or crop-spraying equipment.

There were four of us on this particular flight. In the left-hand pilot's seat was Mr. Vukobratovic Lazar, chief test pilot of the U.T.V.A. Company, whose 28 years of flying were reflected in the precise and very exciting way he handled the controls. By his side was Mr. Hubert Zuerl of Munich, ex-*Luftwaffe* pilot and journalist. In the back were another British Pressman and myself.

Despite the shark's teeth painted on its engine cowling, the Nipper is one of the gentlest aircraft in the world to fly.

Aerobatic displays

Perhaps the best tribute that can be paid to the U.T.V.A. is that we had few qualms when Mr. Zuerl practised stalling it only 2,000 feet over the lagoon, although, like us, he had never seen the aircraft before and could not talk to Mr. Lazar, who spoke only Yugoslav. It became clear that it would be a lot easier to learn to fly the U.T.V.A. than to learn the language.

If I thought that my flights over Venice were thrilling, they were nothing when compared with the (*Contined on page 485*)

MECCANO MAGAZINE

Junior Section

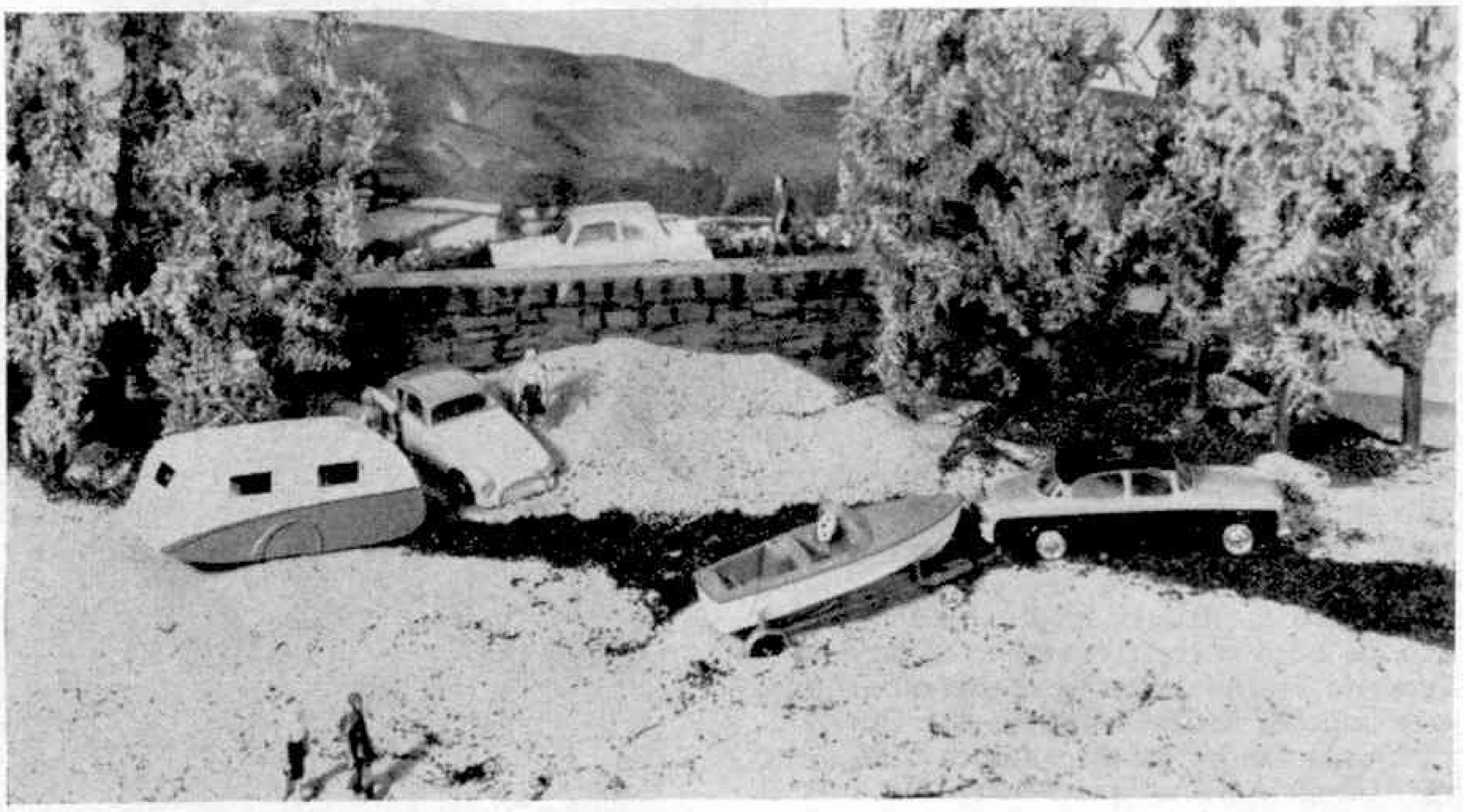
TWO of the boys in this photograph are Meccano enthusiasts, but with another boy and two girls in their school class they have found another medium of construction—matchboxes. In a school project depicting Land, Sea and Air they have built, mainly from matchboxes, a tramp steamer, an underground section of a colliery, a rocket and launching tower, and a suspension bridge. Looking at these models, one does not realise they are made up of dozens of camouflaged matchboxes skilfully covered by paint or cardboard. Photograph by J. D. MacDonald, West Wemyss, Fife.

Launching his Hornby Speed Boat on the yacht pond at New Brighton is Dinky Toys enthusiast David Ellison of Wallasey. This boat is modelled on the R.A.F. Range Safety Launch made by John I. Thornycroft & Co. Ltd., who have a century's experience of constructing boats. Thornycrofts have collaborated with Meccano Limited in the production of another fine new clockwork model, the PL1 Fast Patrol Boat, the prototype of which has a speed of 17 knots.

No. 3 Hornby Speed Boat shown on page ii of cover will not now be available this season.

DINKY TOYS NEWS

By THE TOYMAN



Jaunty Sports Boat To Tow Behind Your Models

A SPORT which has grown tremendously in popularity, particularly in the last two or three years, is sailing. You will remember how the cover of the *Meccano Magazine* for August showed a crew sailing in the Solent, but not all amateur yachtsmen have yachts of this size.

Dinky Toys collectors, particularly those who live near the seaside, must have noticed the growing number of cars which now move smartly along the roads towing behind them jaunty, precisely-designed yachts and motorised craft, mounted on trailers.

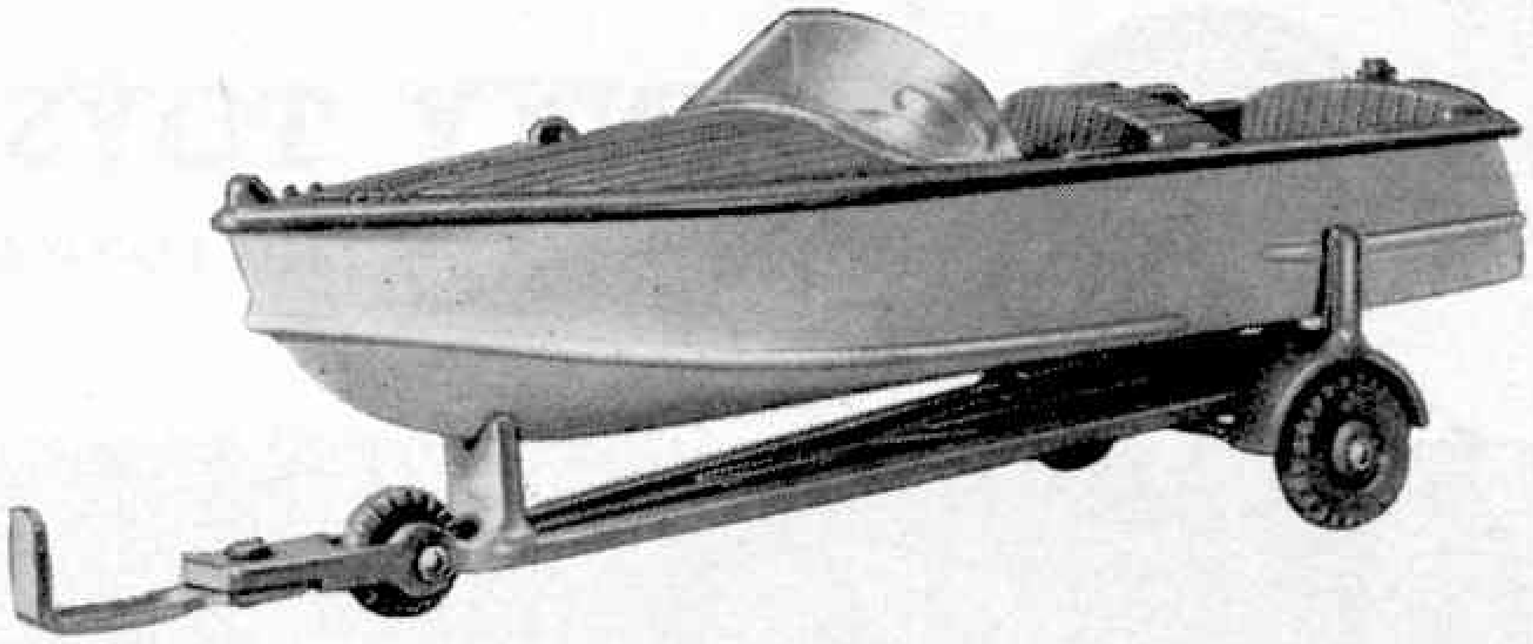
Meccano Ltd. have now introduced into their growing range of Dinky Toys a model boat which gives collectors a chance to emulate the present-day yachtsman who finds delight in sailing one of the popular classes of small craft.

Hydroplane hull

Latest addition to the series is No. 796, Healey Sports Boat on Trailer which you see illustrated in the scene above and separately overleaf. Designed by Healey Marine, Ltd., of Warwick, the prototype of this splendid little craft has a hydroplane hull and teak-faced deck. It is designed for speed and styled for looks and is powered by an inboard 1½ litre B.M.C. overhead-valve engine developing 55 b.h.p. at 4,000 r.p.m. It holds five people in comfort. Length of the actual boat is 14 ft. 9 in. and it has a beam of 5 ft. 6 in. The craft provides stable speed—as much as 34 m.p.h.—and can be used as a ski tow.

The Dinky Toys model is mounted on a trailer which is basically triangular in shape with two large wheels, shielded by mudguards, at the back and, at the front, a small wheel centrally mounted in the chassis frame just behind the towing hook.

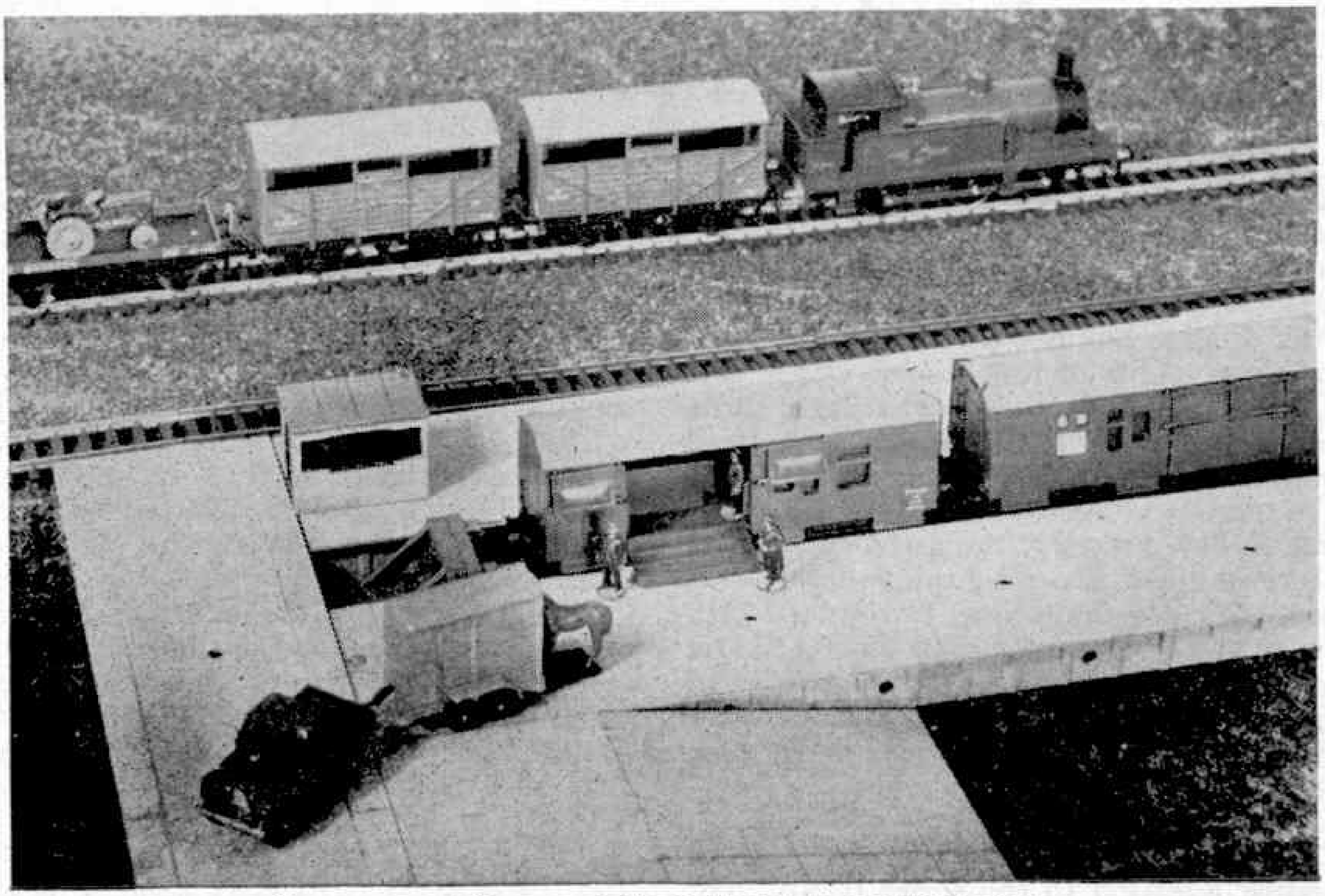
The new Healey Sports Boat on Trailer is towed by No. 165, Humber Hawk, in this summer scene.



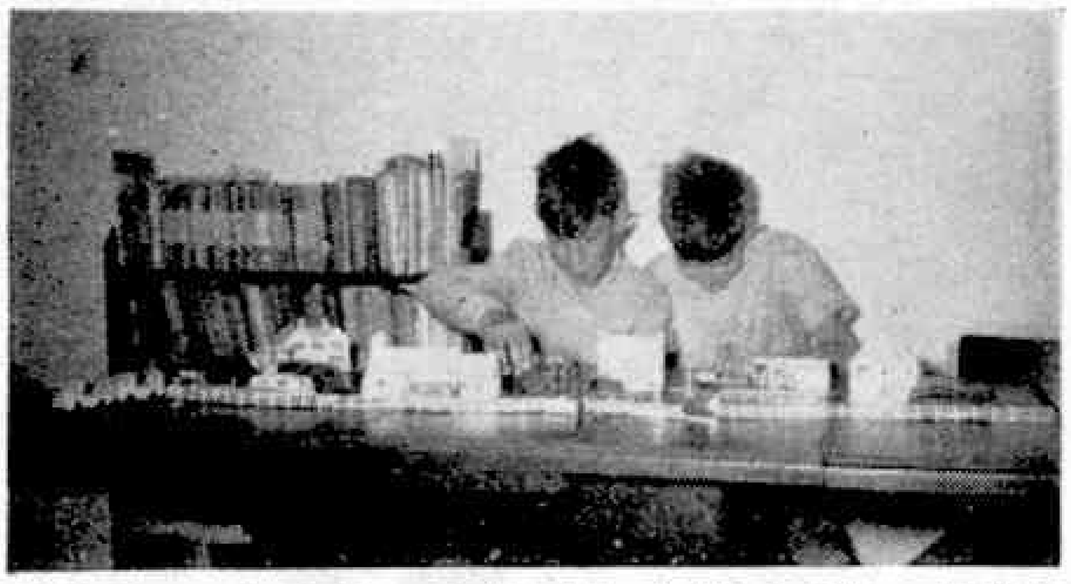
Another view of the Healey Sports Boat on Trailer (right). Below: Alexander R. B. Hope of Edinburgh is seen with some of his Dinky Toys models. He has now recovered from the injury which caused him to have his arm in a sling when this picture was taken.

The model has bright green decking and cream hull, and is fitted with imitation steering wheel and wind shield. It is a twin cockpit craft. One appealing feature is that the sports boat, which is easily removed from the trailer, does actually sail. The model can be towed behind any Dinky Toys car which will haul the popular No. 190 Caravan. You can see from our first picture this month what realism can be obtained from using this up-to-the-minute model.

There is a growing appreciation among Dinky Toys enthusiasts for models which can be used correctly with Hornby-Dublo Electric Train layouts, and this month also sees another fine new addition to the range of Dublo Dinky Toys, which are made to the same scale as Hornby-Dublo. It is No. 073, Land Rover and Horse Trailer, which can be used very effectively in



The new Land Rover and Horse Trailer in a station scene.



Neil Howard (left) and his friend Paul Allan (right) of Norwich are both members of the Dinky Toys Club. Here they are seen with one of their many layouts.

conjunction with the Hornby-Dublo Horse Box. The Land Rover, fitted with windows, is finished in green. It has moulded wheels and a spare is mounted centrally on the bonnet. It is based on the Series 2 Land Rover, made by the Rover Company of Solihull, Birmingham. The main gear box of the prototype has four forward speeds and one reverse, but further ratios are provided by a transfer box, so that, in all, eight forward gears and two reverse are available.

The other half of this unit is based on the Smith's single horse trailer CT86. Measurements of the actual vehicle are: height 8 ft. 5 in.; overall length 12 ft. 8 in.; width 5 ft. The Dublo Dinky Toys model is finished in orange with a tow bar at the front. A model horse is also provided—as in the case of the Hornby-Dublo Horse Box—and there is a movable ramp at the back by means of which the horse enters and leaves the trailer. This ramp closes up to form a three-quarter door at the back of the vehicle. The trailer is on four centrally-mounted moulded wheels, covered by mudguards which slope neatly downwards at the rear. In the actual vehicle a groom's door is situated at the nearside front, giving access to the interior of the body without the necessity for lowering the rear ramp. This door is defined in the detail on the side of the model.

The movement of horses by rail does, even in these days, form a quite important traffic for British Railways, although this relates more particularly to certain parts of the country than to others. In the picture at the foot of page 460 a horse has been brought from the stables in the country to the nearest main line railway station to complete a long journey by rail—a realistic scene enacted with Dublo Dinky Toys and Hornby-Dublo equipment.

Clean Licence Contest

A huge entry was received for the Clean Licence Competition, which was open to holders of the 1959–60 Dinky Toys Collector's Licence.

Entries came in from all parts of the country and from abroad, and the panel of judges who had to decide on the awards have had a very difficult task.

The standard of entries generally was so impressive that it was decided to increase the number of prizes in this competition. It was originally announced, you will remember, that prizes of Dinky Toys to the value of £1 would be awarded to each of 20 winning competitors. However, in the light of the entries received, 20 further prizes of Dinky Toys to the value of 10/– have been added as consolation awards. All the winners have been notified by post. Their names are:

FIRST PRIZES

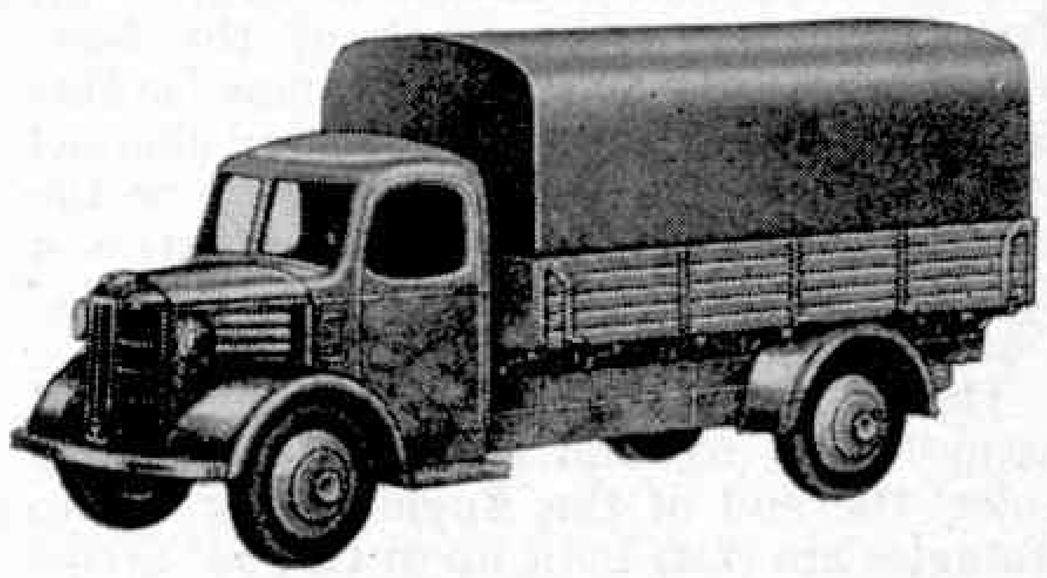
E. B. Street, Redditch; W. R. Pine-Coffin, Redhill; T. H. H. Cooper, Thulston, Nr. Derby; S. Cawthorn, Daybrook, Arnold; S. Caughlin, Glasgow C.5; D. J. Hall, Sutton; P. Williams, Pulborough; R. MacLeod, Edinburgh 4; C. Clifford, Balby, Doncaster; L. A. M. White, Alverstoke, Gosport; R. Straughton. Workington; C. R. Chapman, Wadsley Bridge, Sheffield 6; A. P. Gelsthorpe, Cleeve Hill, Nr. Cheltenham; P. G. Kane, Carbury, Co Kildare; R. J. Longhurst, West Burton, Pulborough; E. N. Pounder, Hall Green, Birmingham 28; R. F. West, Newhall, Burton-on-Trent; D. J. Hughes, Newport; S. Curtis, Thornton Heath; D. A. Porter, Netherton, Bootle 10.

CONSOLATION PRIZES

P. Williams, Liverpool 7; A. F. B. Henegan, South Hetton; R. L. Hobson, Belper; S. J. Green, Bedford; J. Newman, Christchurch; J. P. McMahon, Swindon; A. J. Phipps, Belvedere; P. Hobbs, Burnham-on-Sea; S. A. Duplock, London, S.W.4; R. Maxwell, Dungannon, Co. Tyrone; R. Moody, Wellsway, Bath; C. J. Deady, London, S.W.9; M. D. O'Sullivan, Monkstown, Co. Dublin; R. M. Barley, Leicester; G. R. Orme, Rubery, Birmingham; A. Campbell, Skye; D. C. Harris, Harlescott, Shrewsbury; A. Yeoman, B.F.P.O. 20, Germany; J. S. Watts, Dalton, Huddersfield; D. L. Cox, Sandway, Nr. Maidstone.

DINKY RHYMES

No. 413 Austin Covered Wagon



'Neath prairie sky, in days gone by,
The pioneers would drag on
Their tiresome hike; they'd nothing like
The Austin Covered Wagon.

Easy Model-Building

"Spanner's" Special Section for Juniors

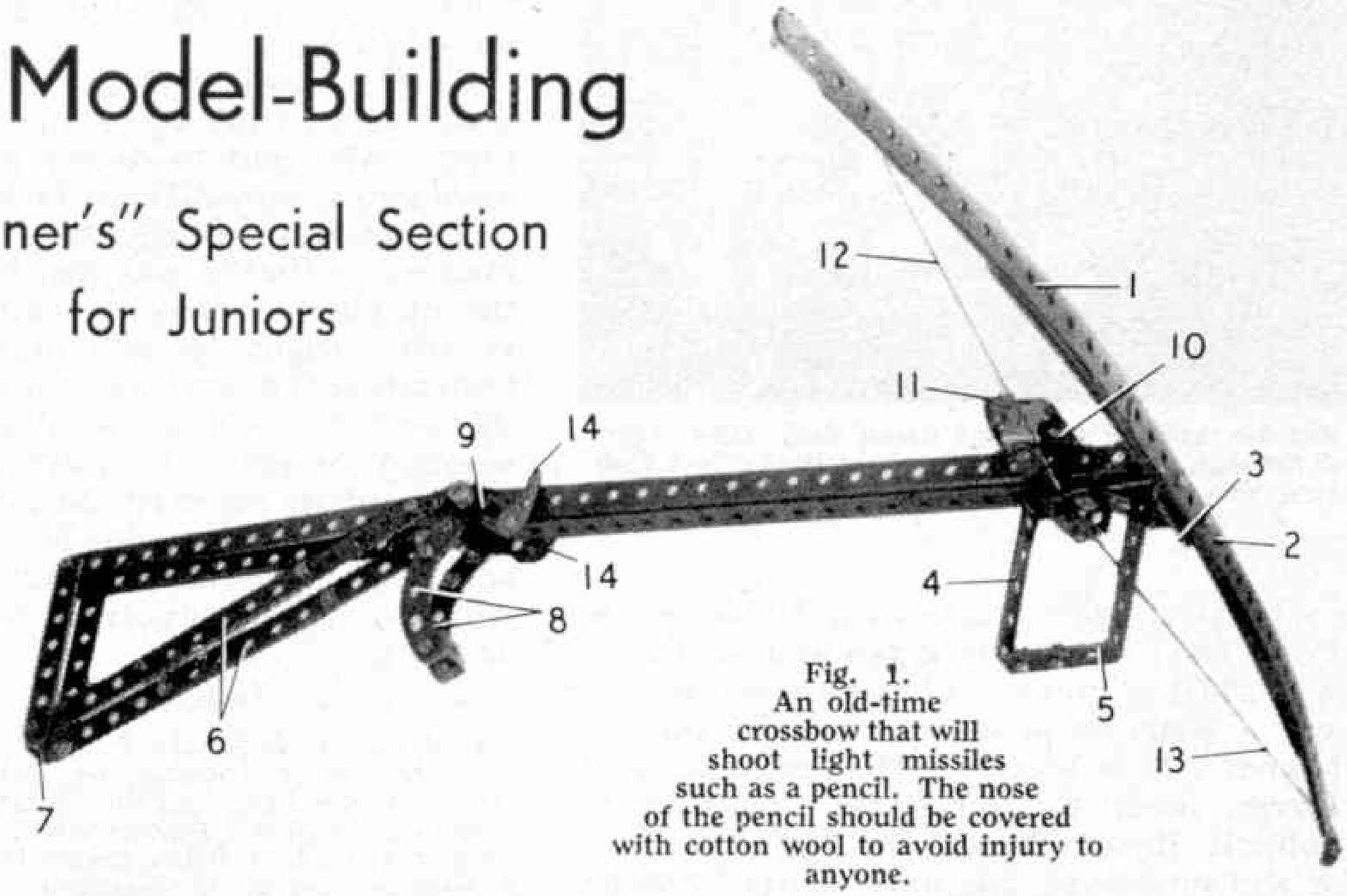


Fig. 1. An old-time crossbow that will shoot light missiles such as a pencil. The nose of the pencil should be covered with cotton wool to avoid injury to anyone.

Cross Bow

THIS model of a weapon of the Middle-Ages, which is a development of the ordinary bow and arrow, is easy to construct and when completed can be used for "shooting" pencils or similar wooden missiles. Care should be taken, however, to ensure that whatever is used for the missile is blunt or round-ended, not pointed; better still, the end should be covered with cotton wool to avoid accidental hurt to anyone.

The construction is quite simple. First build up a spring from five 12½" Strips. The first two 12½" Strips 1 and 2 are overlapped nine holes, the second pair are overlapped thirteen holes, and the fifth Strip is simply bolted centrally across the back of the other four.

A 1½" Angle Girder 3 is bolted to the bow, and to this a Flat Trunnion is fixed. This Trunnion carries the stock of the bow, which is made from two 12½" Angle Girders bolted together to form a U-shaped channel girder. A hand grip is also bolted to the underside of the Trunnion and consists of a 2½" × 1" Double Angle Strip 4 and a 2½" × 1½" Double Angle Strip 5 bolted together.

The butt consists of a 7½" Perforated Strip bolted to, and overlapping by two holes, the end of the Angle Girder. Two triangles are then built up of two 5½" Strips 6 overlapped seven holes, and a 3½" Strip that forms the butt end. The two triangles are connected together by two Double Brackets.

The trigger is built up from two Bell Cranks, one on each side of the stock, pivoted on a 1½" Rod passed through the Angle Girders. Two 2½" Stepped Curved Strips 8 are bolted to the Bell Cranks together with two Pawls 14. A Driving Band 9 is first passed through a hole in the Angle Girders, then looped around the two Cranks and finally the other end of the Band is looped around the end of the 1½" Rod. The trigger assembly is now "sprung". The Pawls engage the firing mechanism, which consists of two 2½" Strips bolted together by two Double Brackets. A Double Bent Strip 10, which is bolted to the upper Strip, projects into the space between the two 12½" Angle Girders. A 2½" Curved Strip is also bolted to the top of this assembly by means of two Fishplates 11.

The firing mechanism is connected to each end of the bow by lengths of Cord 12 and 13 as shown. To operate the Cross Bow the firing mechanism is pulled back until the Pawls 14 engage in holes in the 2½" Curved Strip fixed to the Fishplates 11. The missile is then placed in the channel formed by the 12½" Angle Girders, the trigger is pulled backward and the missile is "fired".

Parts required to build the Cross Bow: 5 of No. 1; 2 of No. 1b; 4 of No. 2; 2 of No. 3; 2 of No. 5; 2 of No. 8; 1 of No. 9f; 3 of No. 10; 5 of No. 11; 1 of No. 12; 1 of No. 18a; 39 of No. 37a; 37 of No. 37b; 6 of No. 38; 1 of No. 40; 1 of No. 45; 1 of No. 46; 1 of No. 47; 1 of No. 90; 2 of No. 90a; 2 of No. 111; 1 of No. 126a; 1 of No. 128; 2 of No. 147; 1 of No. 186.

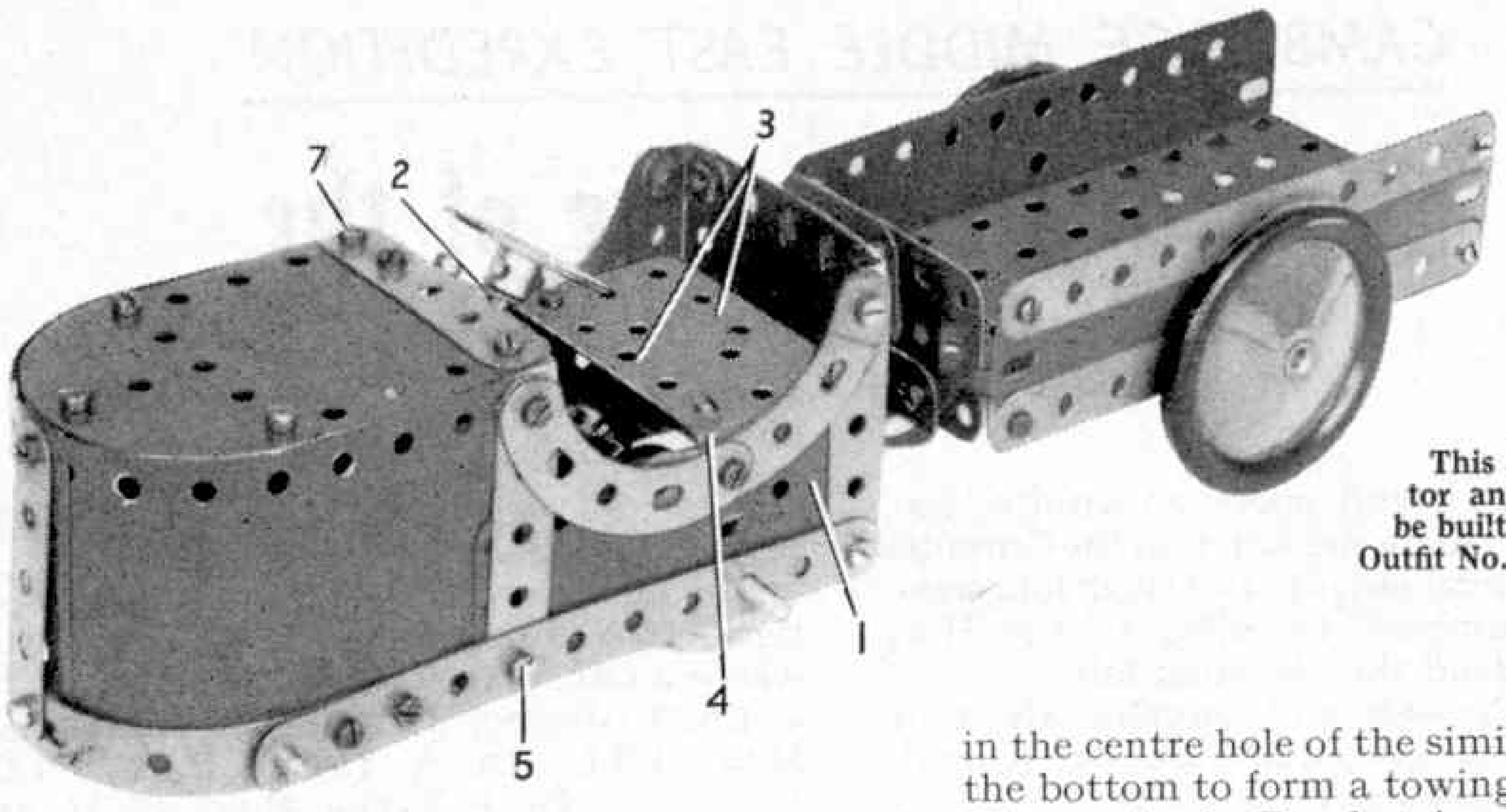


Fig. 2. This Towing Tractor and Trailer can be built from parts in Outfit No. 3.

Towing Tractor and Trailer

This realistic model can be built from parts in Outfit No. 3 and it is driven by a Meccano Clockwork *Magic* Motor. The Motor is not included in the Outfit.

The sides of the Tractor chassis are $5\frac{1}{2}$" Strips with two 3" Formed Slotted Strips attached to them to form the curved front. Angle Brackets are fixed to the rear end holes of the $5\frac{1}{2}$" Strips and to these a $2\frac{1}{2}$" × $2\frac{1}{2}$" Flexible Plate overlaid by a $2\frac{1}{2}$" Strip, is attached.

The front of the Tractor consists of two $4\frac{1}{2}$" × $2\frac{1}{2}$" Flexible Plates fixed to the inside of the $5\frac{1}{2}$" Strips and Formed Slotted Strips, and shaped to form the front and sides. The top is formed by a Semi-Circular Plate and a $2\frac{1}{2}$" × $2\frac{1}{2}$" Flexible Plate, these parts being attached by Angle Brackets to the front and sides. A $2\frac{1}{2}$" × $1\frac{1}{2}$" Flexible Plate, and a $2\frac{1}{2}$" × $1\frac{1}{2}$" Triangular Flexible Plate 1 complete the sides, and these are edged with Curved Stepped Strips.

A $2\frac{1}{2}$" Strip is bolted to the top edge of the back and a Double Bracket 10 is fixed in the centre hole of the similar Strip at the bottom to form a towing hook. An Obtuse Angle Bracket is attached to the underside of the top of the bonnet, and a Fishplate 2, carrying a Bush Wheel, is attached to this Obtuse Angle Bracket to represent a Steering Wheel.

The driver's seat is made up of two $2\frac{1}{2}$" × $1\frac{1}{2}$" Triangular Flexible Plates 3 bolted to a $2\frac{1}{2}$" × $\frac{1}{2}$" Double Angle Strip 4 which, in turn, is bolted to the Stepped Curved Strips edging the sides of the body. A Double Angle Strip held by bolts 5 on each side serves to brace the sides of the Tractor.

A *Magic* Motor is attached by a nut and bolt to the $5\frac{1}{2}$" Strip 6 on the near-side of the Tractor, and is also held by a $2\frac{1}{2}$" Perforated Strip that is fixed to the Angle Bracket held in place by bolt 7. The road wheels are 1" Pulleys fitted with Rubber Rings, and they are fixed on $3\frac{1}{2}$" Axle Rods journalled in the sides of the Tractor. The drive is transmitted by a Driving Band from the Pulley on the Motor to a 1" Pulley 8 on the rear axle.

The trailer chassis is a $5\frac{1}{2}$" × $2\frac{1}{2}$" Flanged Plate with a $5\frac{1}{2}$" × $1\frac{1}{2}$" Flexible Plate edged with two $5\frac{1}{2}$" Strips bolted on each side. The front of the trailer is made up of two Flat Trunnions placed base upwards with a Trunnion 9 bolted to their apex holes to form the attachment *(Continued on page 485)*.

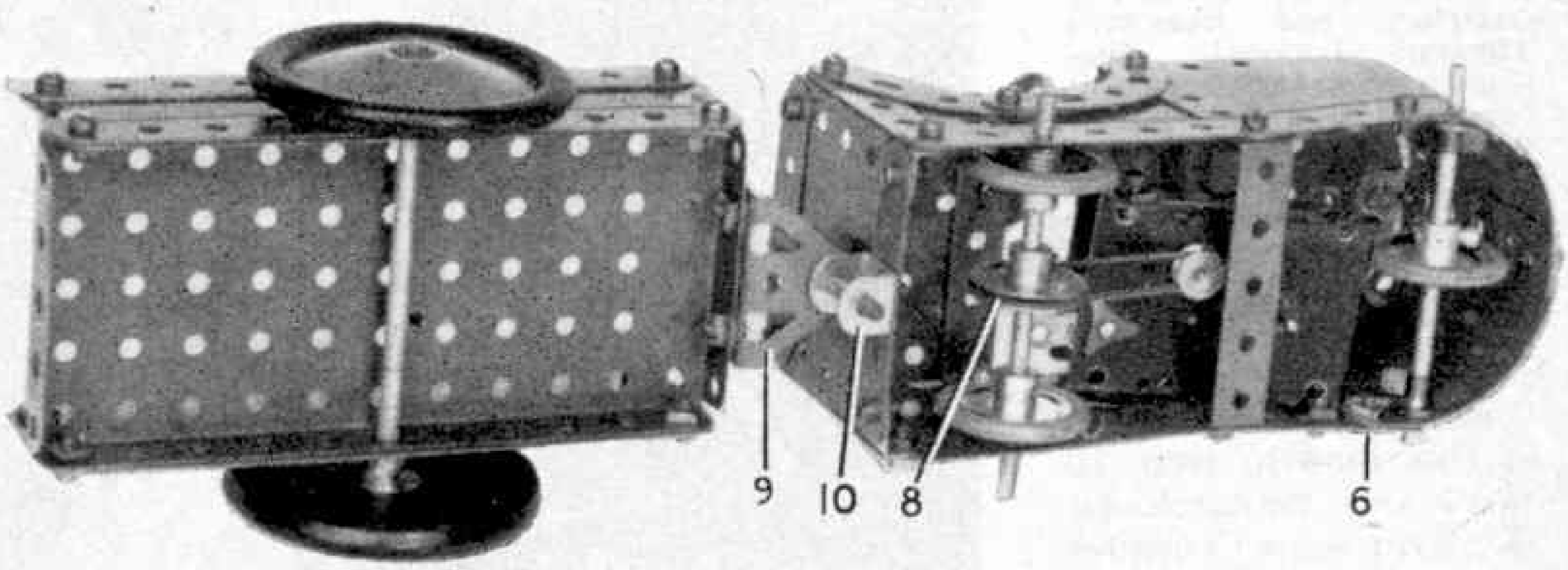


Fig. 3. The underside of the Towing Tractor and Trailer showing how the *Magic* Motor is fitted.

CAMBRIDGE MIDDLE EAST EXPEDITION

Tracing the route of the first Crusaders

By The Editor

MOST boys, and many grown-ups, too, are stirred by the stories of the Crusades when mediæval knights and their followers, in great numbers, travelled to the Holy Land to defend the Christian faith.

Among the orders of chivalry who took part in those Crusades were the Knights Templar, founded by a Burgundian knight, Hugh de Payns and his friend Godfrey of St. Omer, and the Knights of St. John. These names are perpetuated to this day at the school where I was once a pupil, for two of the five Houses there are named after these famous bodies of men. It was a thrilling feeling as a schoolboy—for I was in the Templars—to carry, on the top pocket of one's blazer, an insignia which preserves their memory.

But how much more fascinating must it be to follow in the steps of those stalwarts of ancient days. That is the fortunate experience of a band of modern explorers who have joined together in an expedition from Cambridge. A few weeks ago they set out, by road, for the Middle East and one of their aims was to follow the route of the First Crusade to Jerusalem. Two other important aims of this expedition, which is due to return to this country towards the end of this month, were to carry out research on the Armenian Crusader castles and to undertake a physiological research programme.

The members of the party are R. H. Ortiger, J. A. Tackaberry, Miss Mary Burns, who is a Canadian reading at Cambridge for a Ph.D. degree, Dr. C. W. McCutchen, M.Sc., Ph.D., Dr. A. Taylor, B.Sc., Ph.D., Dr. P. Taylor, B.Sc., Ph.D., and Bruce W. M. P. Moorsom. In addition, two experienced photographers are also accompanying the expedition throughout its travels.

The travellers have had the help and advice of Sir Steven Runciman, a leading authority in Great Britain on the subject of the Crusades, and Pere de Vaux, a prominent archæologist in Jerusalem, is advising them during their stay in the Middle East. Their journey in all will cover something in the order of 10,000 miles, much of it over rough terrain.

The Council of Clermont in 1095 was the occasion for the launching of the First Crusade. Among its military leaders was

Here, left to right are Bruce Moorsom (in charge of vehicles), John Tackaberry (secretary and treasurer), Theodore Cockerell (cine-photographer) and Mary Burns (medical adviser). The picture was taken while equipment was being sorted to facilitate loading later on.

Godfrey de Bouillon, Duke of Lower Lorraine, and the modern expedition set out with the intention of following the route he took to Jerusalem. They left Paris on 1st July, and the itinerary from then on was to Regensburg, in Germany, by the most direct route, through Strasbourg, Stuttgart and Nuremburg. From there the route proceeded east to Vienna, Budapest, Belgrade and Sofia into Turkey and thence to Damascus in Syria, and finally on to Amman and Jerusalem.

Richard Ortiger drives one of the expedition's vehicles to the Severn Ferry on the way from Cardiff (where the vehicles had been collected) to Cambridge

In the course of the journey through Turkey, between Goksun and Marash, the travellers are attempting to find the route, so far unknown, which was taken by the Crusaders through the Taurus mountains which lie between these two towns.

The Crusaders' campaigns against the Turks extended over many years and as a result of this, castles which the Crusaders built are dotted about the whole of the north-eastern corner of the Mediterranean coastline. Architectural features of these castles are such that they can aid identification of the builders and, indeed, probably illustrate the progress of the various campaigns.

Even now, nearly 900 years after the crusades began, many of these castles are still in an excellent state of preservation and others are still unknown and unexplored. Those which the Cambridge party will examine are located at Sis, about 50 miles up into the mountains north-east of Tarsus, in Southern Turkey.

"THE LOCOMOTIVES OF THE LONDON CHATHAM AND DOVER RAILWAY"

By D. L. Bradley

(R.C.T.S., price 13/6d.)

The London Chatham and Dover Railway was for many years fiercely competitive with the neighbouring South Eastern, until in 1898 their fortunes were linked under a joint Managing Committee and the combined system assumed the title of South Eastern and Chatham Railway. As such it passed into the Southern group and now forms an important part of the Southern Region of British Railways.

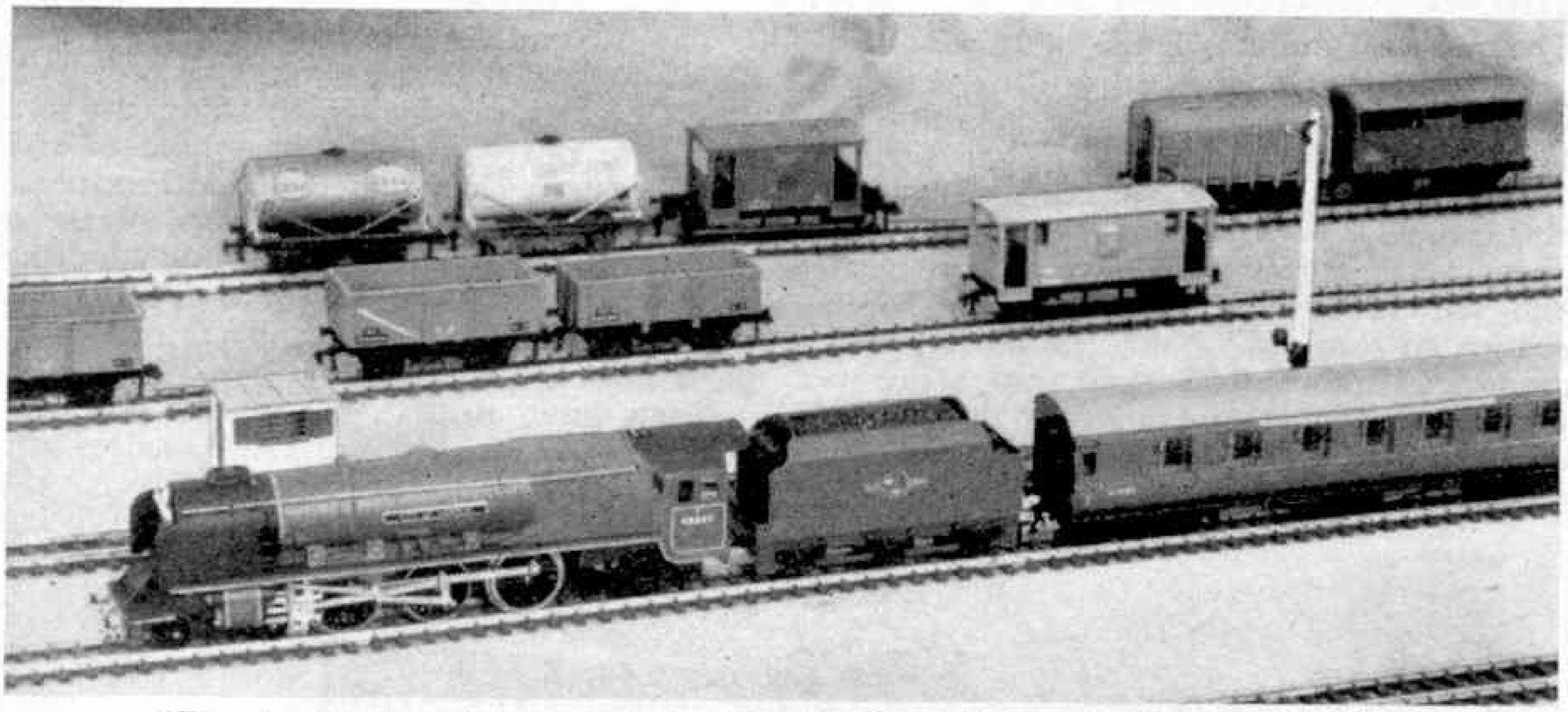
Like its neighbour, the Chatham line had its faults. Unpunctuality, high fares, and indifferent passenger accommodation were, for many years, the subject of many a traveller's tale or music hall quip. The company was beset by financial difficulties that were not helped by competition with the South Eastern, for this merely divided much of the traffic.

In spite of all this, however, its engines in general were good and they were well kept, although in the earlier years of the company they were a curious and miscellaneous collection. By reason of its finances the Chatham was always a likely purchaser of any second-hand locomotives that might be for disposal.

The tale of these locomotives, and a great deal more, is told in this most recent publication by the Railway Correspondence and Travel Society. As in previous R.C.T.S. books, it is clear that a great deal of painstaking research has been involved in the preparation of the account, which deals with the various locomotive classes from the earlier specimens, with their classical names to the later and perhaps more businesslike classes built under the superintendence of William Kirtley.

Although numbers and names necessarily form an important part of the data in the book there is much else besides, such as leading dimensions, dates and an account of each individual class, with notes on subsequent history, where applicable, into the S.E.C.R., Southern and British Railways periods. There are plenty of illustrations, one or two diagrams and a couple of maps showing the extent of the London Chatham and Dover line.

Copies will be eagerly sought by those interested in locomotive history. The book costs 13/6d., including postage, from the Hon. Assistant Publications Officer of the R.C.T.S., at 19 Dene Court Road, Olton, Solihull, Warwickshire.



"City of London" making a long run on a Hornby-Dublo Two-Rail layout with "The Caledonian". Engine and the train carry the appropriate name "boards".

Some Miscellaneous Topics

HORNBY RAILWAY COMPANY

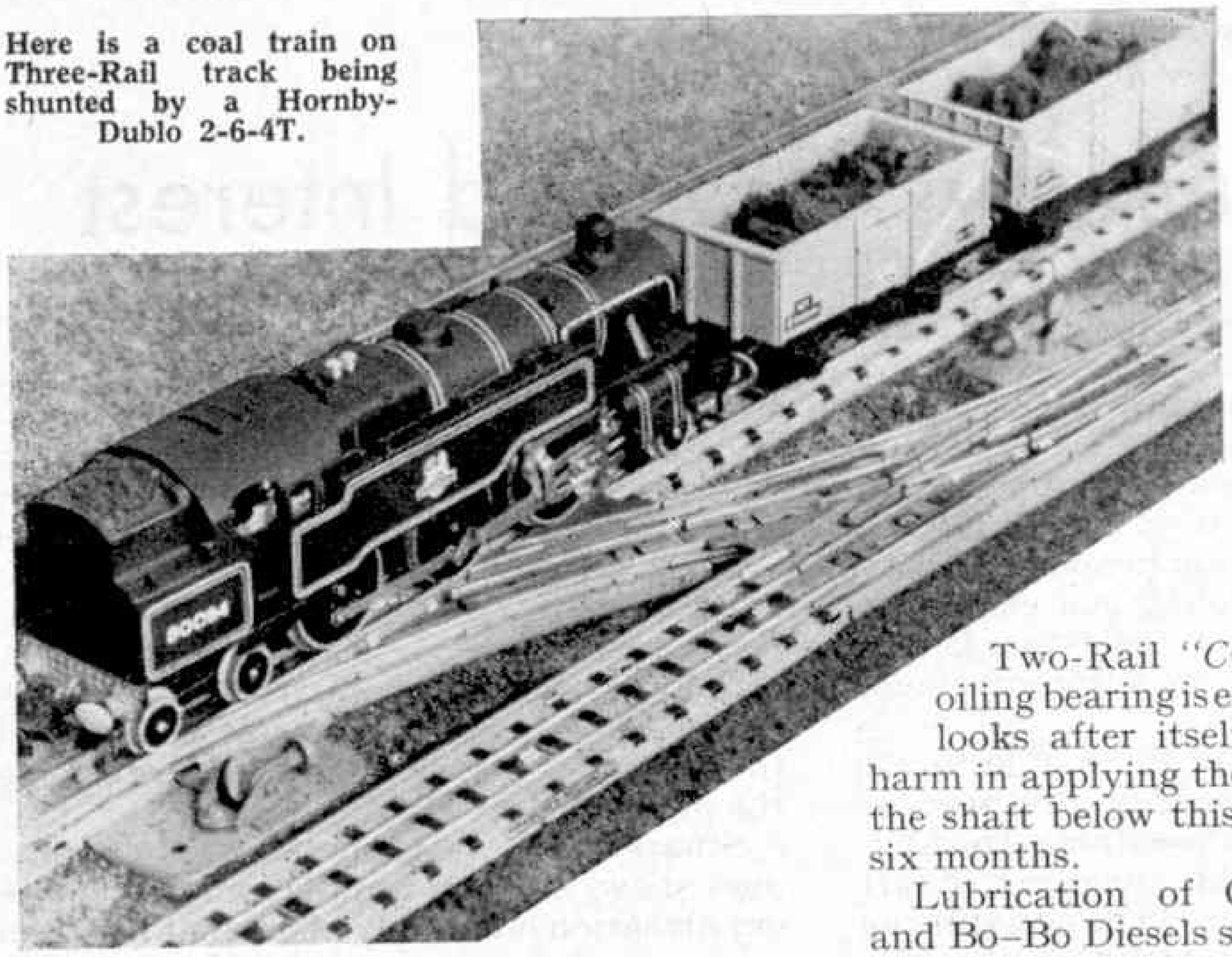
By the Secretary

ABOUT this time of the year many Hornby-Dublo owners begin to consider how they can develop and improve their layouts during that time of the year that is sometimes considered as the miniature railway "season". I know that many miniature railwaymen do not recognise any season as such, but carry on with the good work throughout the year. Whether this is so or not, developments for the coming months usually do receive some attention as the nights become longer. So it is no bad thing to stop train running for a bit and think out what the next moves are likely to be.

I know that the amount of space you have available, particularly if you have a baseboard layout, will affect track and similar developments, but here and there it is often possible to make improvements to an existing system. That odd dead-end siding can perhaps be converted to a useful running loop. Similarly, sidings for holding rolling stock or for marshalling purposes can be installed or developed.

Apart from track developments and the addition of lineside items, station extensions and so on, it is well to consider the condition of the track itself and to make quite certain that all is ready for plenty of good running. That the track must be clean goes without saying, and owners of Two-Rail and Three-Rail systems necessarily devote a certain amount of time fairly regularly to this particular job. Some enthusiasts tend to develop their own pet methods of track cleaning, which may be more or less effective. Where cleaning is regular the rails themselves usually stay in reasonably good condition, even under heavy traffic, but sometimes it becomes necessary to use some cleaning medium for the treatment of sections where the accumulated railhead deposit tends to be obstinate. A point I should like to stress, and this is mentioned in the instructions booklet packed with all the more recent Hornby-Dublo Two-Rail Locomotives, is that one should avoid the use of the usual household grease solvents, some of which can affect the sleeper base of Two-Rail track. It is almost inevitable that a certain amount of any solvent employed on your cleaning rag will find its way on to your track base. For Two-Rail, methylated spirit is recommended and it should be applied on a non-fluffy type of duster.

If you are a Three-Rail owner, use the same type of duster, but employ something



Here is a coal train on Three-Rail track being shunted by a Hornby-Dublo 2-6-4T.

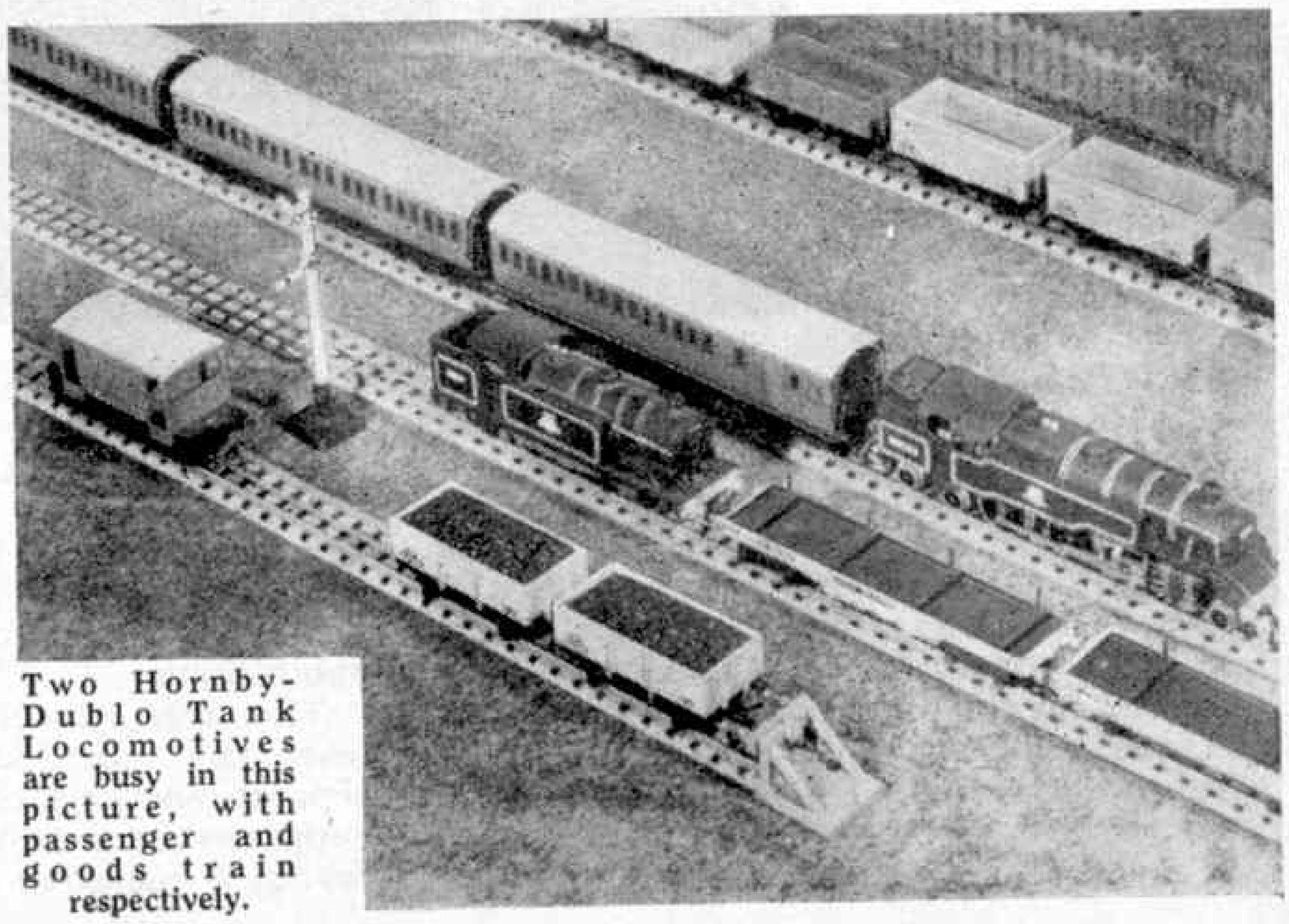
like carbon tetrachloride as methylated spirit may mark the tinprinted base of your Three-Rail track and give the railway as a whole a somewhat worn appearance.

As with the track, so with the locomotives and rolling stock. Wheel cleaning is a necessary part of the business, not so much the locomotive driving wheels, which usually remain fairly bright, but bogie and rolling stock wheels can pick up the peculiar form of "mud" that tends to form as the result of running. Straightforward wiping clean usually deals with this satisfactorily. It is a good scheme at the same time to check on the condition of the axle bearings and to do any necessary cleaning or fluff removing that may be necessary. Lubrication should follow, but be sure to use only the *smallest* quantity of Hornby-Dublo Oil, otherwise it is sure to find its way on to the wheel treads and so on to the track and the whole business of cleaning will soon become necessary again.

A feature of the older types of Hornby-Dublo Locomotives is the upper bearing of the Armature, which is arranged to be lubricated through the top of the bearing. This arrangement is quite satisfactory, so long as oiling is regular, at intervals depending on the amount of use that the engine has. In two locomotives with the vertical shaft type of motor, the 2–6–4T and the Two-Rail *"City of London"*, a self-oiling bearing is employed. This normally looks after itself, but there will be no harm in applying the slightest drop of oil to the shaft below this bearing about once in six months.

Lubrication of Castle, 2–8–0, 0–6–0T and Bo–Bo Diesels should be frequent, with not too much oil applied at a time.

It is important to remember that the collector wires behind the driving wheels of Hornby-Dublo Two-Rail locomotives should be correctly maintained and kept clean. This applies equally to the collector shoes of Hornby-Dublo Three-Rail locomotives. On these engines it is particularly important to see that the shoe assembly lies correctly on the centre line of the motor frame fore and aft, and is not inclined to one side or the other. Otherwise you may get uncertain running when the engine is negotiating Points and Crossings.



Two Hornby-Dublo Tank Locomotives are busy in this picture, with passenger and goods train respectively.

"Layout Man" writes about:

Three Railways of Varied Interest

IT is clear from correspondence that Hornby-Dublo owners continue to find great interest in the layouts shown month by month in these pages. Most miniature railway systems are in a constant state of development, so that it is useful for the enthusiast to see how other people do things. Notes and pictures studied can encourage similar developments on one's own layout or may inspire some form of improvement not previously in mind.

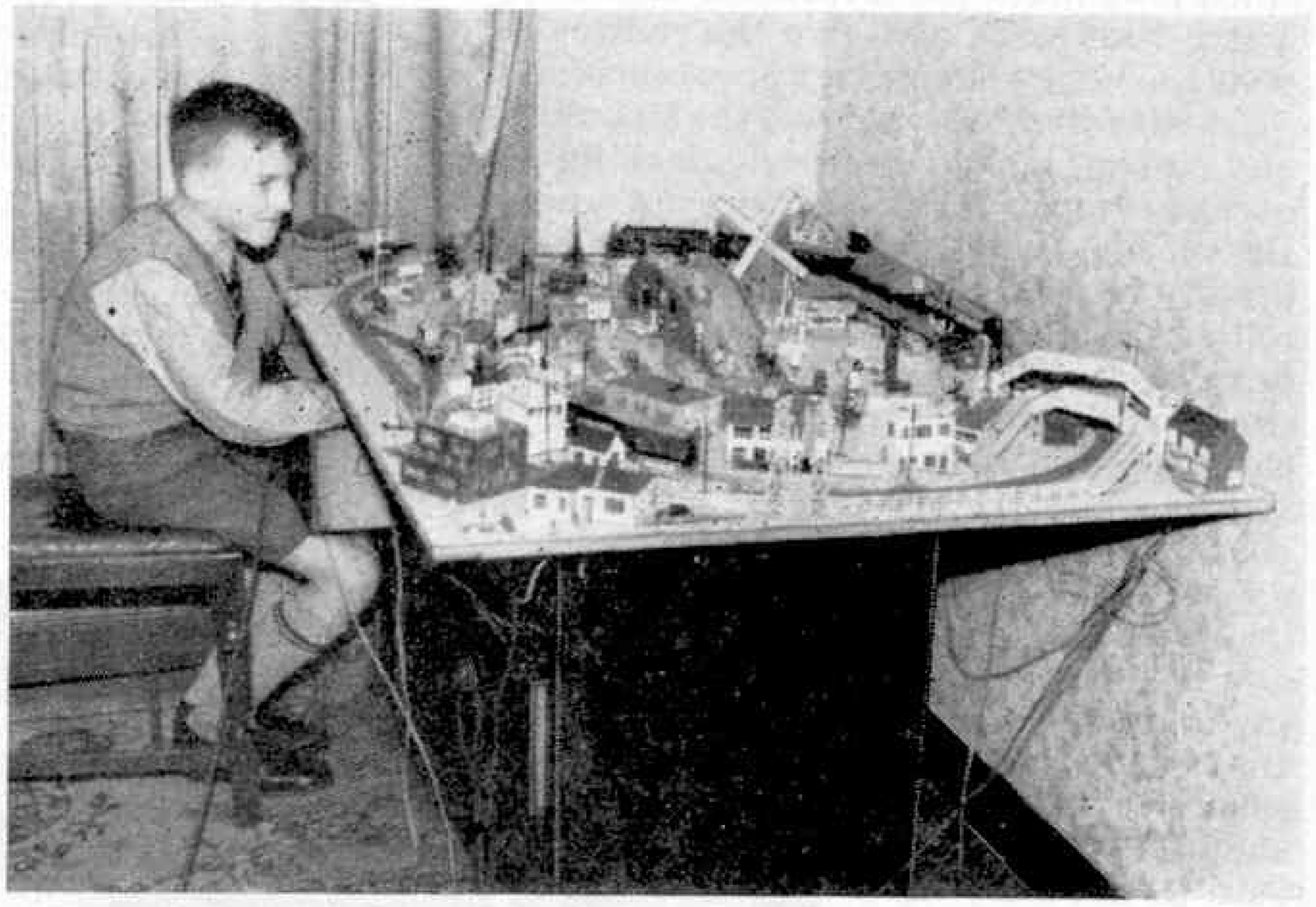
I am particularly glad to be able to use the photograph reproduced on this page, as this shows the very presentable Hornby-Dublo railway of H.R.C. member Stuart Haydock, of Bradford. This enterprising reader has long had the ambition of seeing his railway in the *M.M.*, but he wisely waited until the system had reached a state of development suitable for making a worthwhile picture.

Although Stuart has evolved the layout design himself and has, indeed, carried out the necessary installation and wiring of the track, and of electrically-operated accessories, as well as providing lineside items with illumination, he has been fortunate in having the encouragement and help of his mother. No doubt it was her idea to support the baseboard on the chest of drawers you see in the picture. This forms good support for a well-braced board and as it is narrower than the width of the actual baseboard ample "knee room" is provided for the operator.

There is plenty of traffic on this well-arranged little line. The express trains are taken by one of the earlier Hornby-Dublo A4 models *Silver King*, while freight is handled by a Bo-Bo Diesel and a Tank Locomotive, the latter being an addition to stock last Christmas. The general size and style of the railway does not allow a great deal of rolling stock to be accommodated, but train running is a happy business and, as is evident from the picture, there is plenty of lineside interest. In addition to buildings, there is a roadway system within the main railway track and the central feature of this is the overbridge by means of which road traffic crosses the circular track traversing the middle of the board.

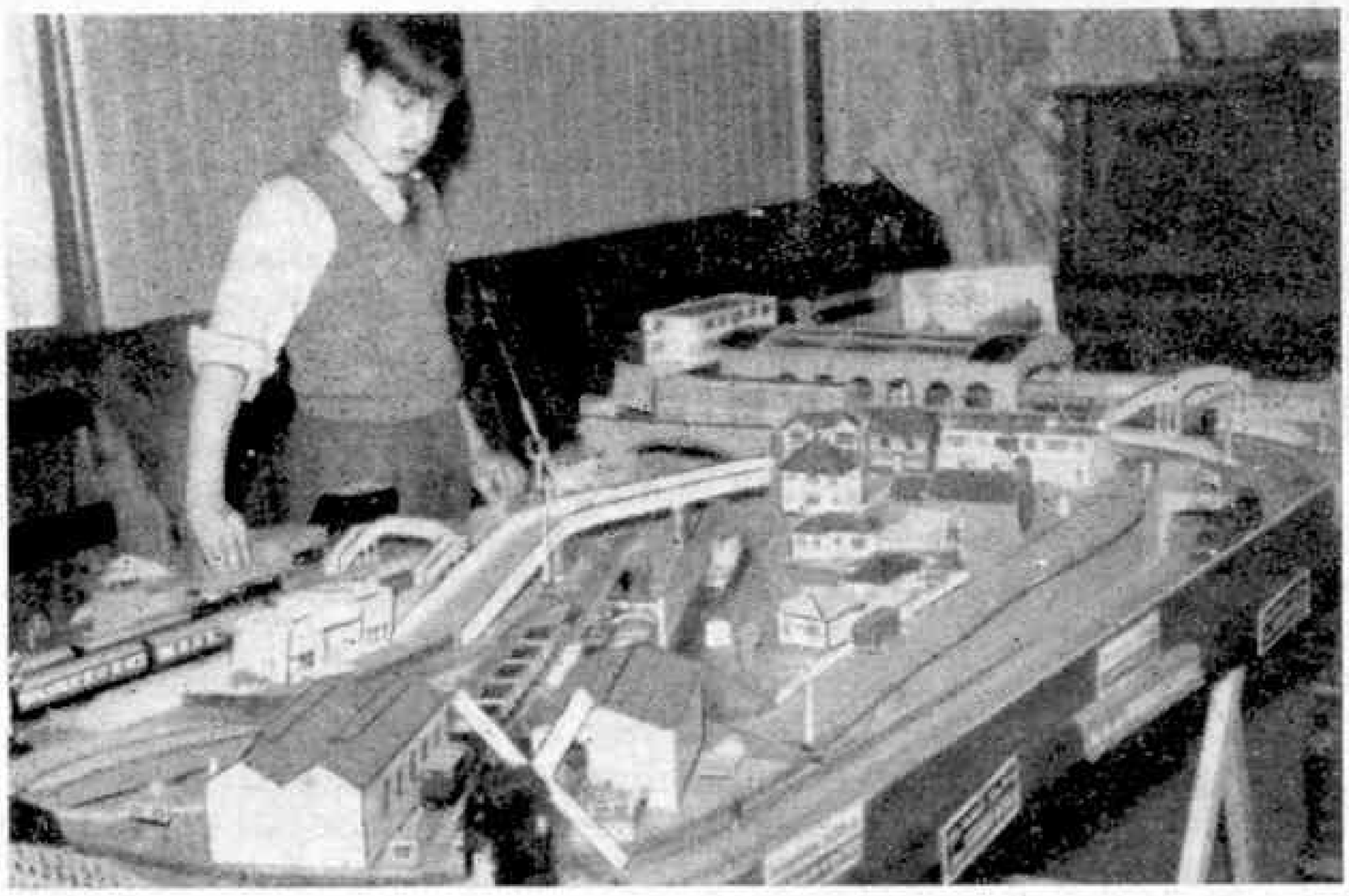
Stuart's railway is something of a one-man show, but the next layout to require our attention is a family affair that has been in course of development for about twelve years. Our reader J. H. Veitch, whom you see in the upper illustration on the next page, tells me the line enjoys the active interest of his father and elder brother as well as his own. In consequence of its general character and the developments made within recent times it has been possible to feature the railway at one or two local exhibitions.

Therefore, you will not be surprised to learn that the baseboard is arranged in separate sections, the whole assembly being supported on bearers and trestles. Thus the layout is regarded as a semi-portable one,



Stuart Haydock of Bradford, keenly watches train movements on his Hornby-Dublo layout. His baseboard layout is supported on a convenient chest.

but the fact that it can be moved about, if necessary, has not prevented considerable lineside development, as will be clear from the two pictures here. The main sections of the board together provide an area of 8 ft. by 4 ft., in two square sections. The basic track plan follows the usual oval form, in double track. Lying diagonally across the space enclosed by the main oval is a system of sidings serving a locomotive shed and turntable, and a goods depot, these various items having been constructed at home. In



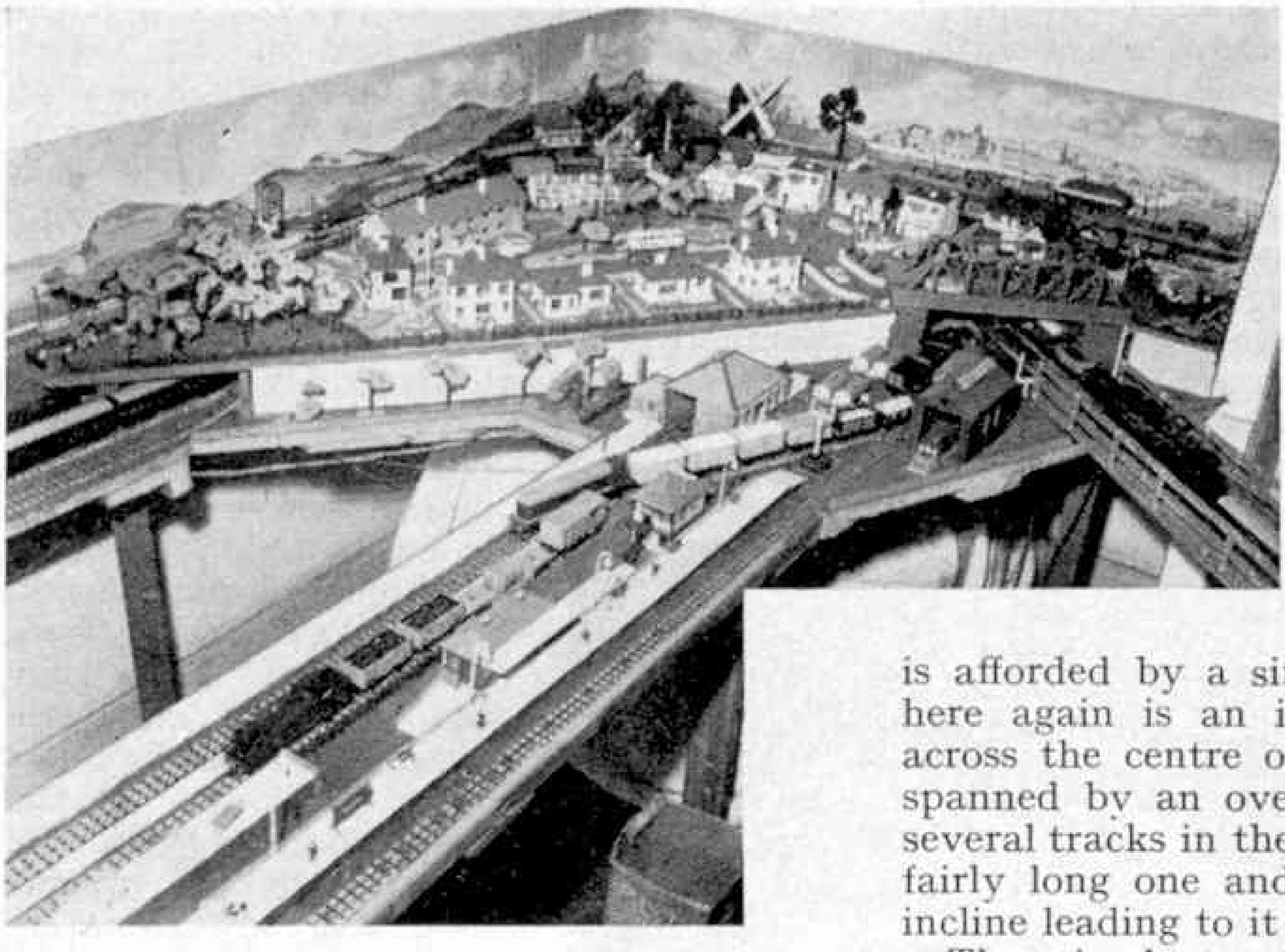
J. H. Veitch, of Rotherham (whom you see in the upper picture) and his father and brother built the Hornby-Dublo layout shown here. Lineside and road effects are a feature.

the foreground of the lower picture you can just see the upper section of a girder bridge which carries part of an inclined track running round three sides of the baseboard level main line and finishing up at a high-level terminus. Therefore at one end of the railway the trains at baseboard level run beneath this in a sort of covered way. You will know from previous notes on other railways in these pages that this scheme is quite a popular one nowadays.

We are all familiar with the reverse loop that is a much-favoured feature of many Hornby-Dublo layouts. As a rule this runs across the centre of the baseboard, but the reverse loop incorporated in the Veitch layout is situated outside the main oval on a separate extension of the main baseboard. This reverse loop leaves the outside main line by means of facing points and having described almost a full circle it returns to cross this outer main line by means of a diamond crossing and runs into the inner main line through trailing points. This, together with the fact that the single-track incline is connected to both inner and outer main tracks, allows trains to begin their journey at the high level main station and make their way down the incline. Then they can run in a clockwise direction round the outer main track and, at the right moment, can be diverted to the reverse loop and so ultimately climb the incline and complete their journey at the terminus.

There is an intermediate station, which you can see clearly in the lower illustration, the two platforms being connected by a standard Footbridge. Incidentally, just to the left of the locomotive heading the train that is passing through the station is the junction by means of which the inclined track joins the main line.

The railway is divided into four main circuits. The up and the down tracks account



Here is the two-level layout of W. Blyth of Edinburgh, arranged on a neat and well-constructed baseboard.

for two of these, then there are the sidings and the incline sections. This means that very complete control is afforded and there are numerous separate isolating sections. Approximately half of the points on the railway—those within reach of the operator—are worked by hand, the other half being electrically operated. The signalling system is very complete and combines Hornby-Dublo Colour Light Signals with semaphore Signals, the latter being of two kinds, Electrically-Operated and hand-operated. The various Uncoupling Rails necessary for so many of the evolutions carried out on the track are placed within easy reach of the operator and are, therefore, of the hand worked variety.

For the most part L.M.R. locomotives and rolling stock are preferred, the engines including a *Duchess of Montrose* and one of the older *Duchess of Atholl* 4–6–2s. The 2–8–0 8F is thoroughly in keeping with the general character of the line and the B.R. Standard 2–6–4 Tank is quite appropriate for an L.M.R. layout. At the same time the lighter duties are admirably performed by one of the useful 0–6–2 Tanks, supplemented by a Bo–Bo Diesel.

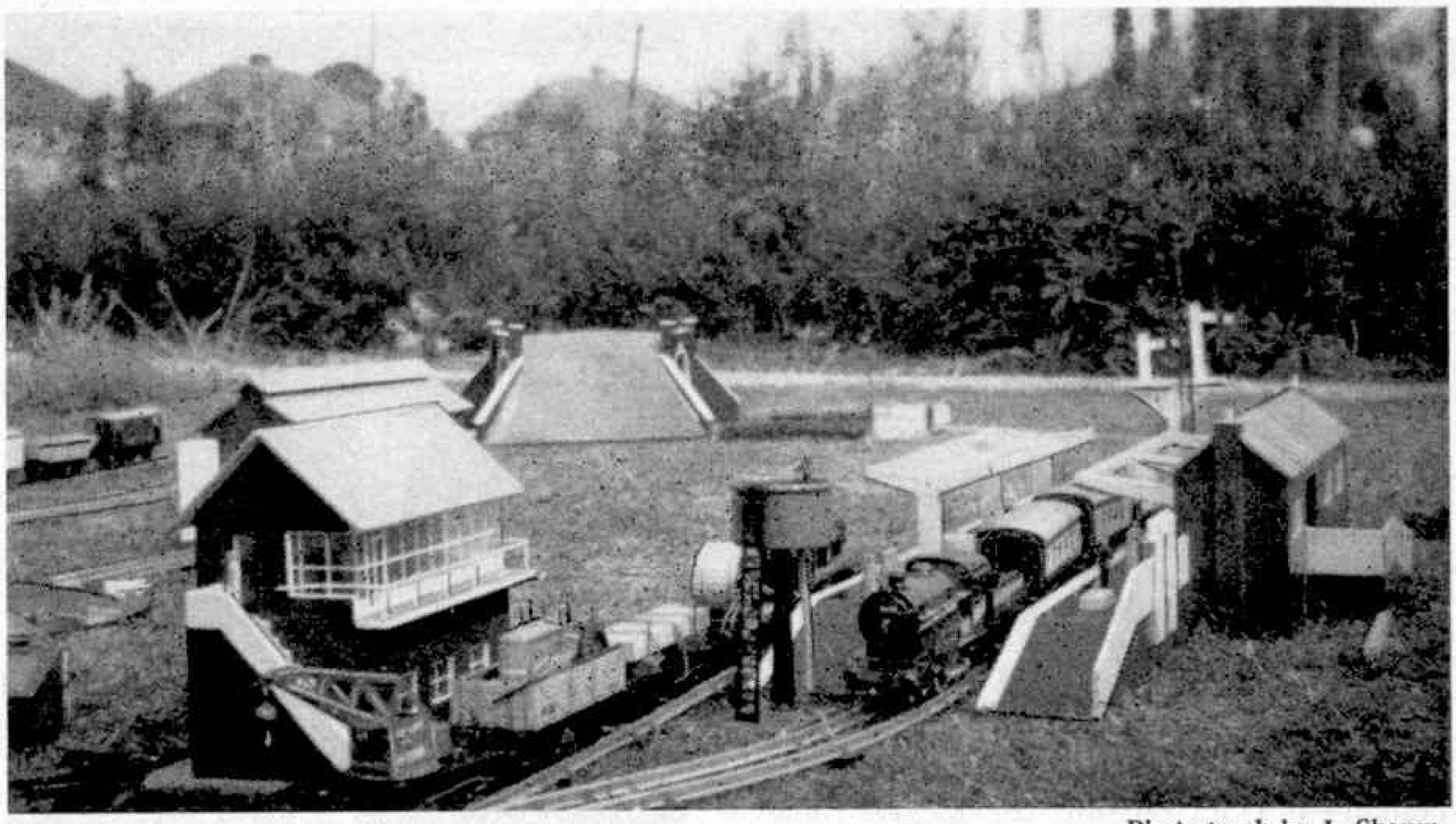
The through station on the main line boasts a T.P.O. Lineside Apparatus on the outer main track. Somewhat unusually this is situated just beyond the platform end, but this was the only place for it. With care in management safety in operation is ensured, safety, that is, from the point of view of the miniature people on the platform.

Additional interest to the lineside effects is afforded by a simple road system and here again is an instance of the tracks across the centre of the baseboard being spanned by an overbridge. As there are several tracks in the sidings the bridge is a fairly long one and it has a well-graded incline leading to it from the station yard.

There is plenty of variety in freight and passenger traffic although timetable working does not seem to be practised regularly. The owners of the railway tell me they gained valuable experience in operating from showing their railway at the one or two exhibitions mentioned previously. There is nothing like appearance in public to stimulate smart and effective train working. Incidentally, as you can well imagine, the reverse loop proved exceptionally useful during these sessions.

Owing to the semi-portable character of the railway scenic development as such has not been followed up, but the reverse is the case on the third layout we have to talk about this month. This belongs to Hornby-Dublo enthusiast W. Blyth, of Edinburgh who has an excellent baseboard built precisely to meet layout requirements. There is an overhead section in one corner and this is the view you see in our picture. You will notice that this raised section boasts a considerable degree of suburban development. An inclined track runs up to serve this area, the station being in the background. The main line track at normal baseboard level incorporates various roads and as you can see from the right of the picture there is a section built up from Meccano parts to carry one arm of the railway from one main section of baseboard to the next.

The complete layout occupies a space of 12 ft. by 8 ft., with a total of four stations and two goods yards, locomotive yard and turntable. The nine engines in use range from Pacifics to 0–6–2 Tanks, while there are thirteen passenger vehicles and almost fifty freight Wagons and Vans.



Photograph by J. Champ.

At Churchdown Again

By "Tommy Dodd"

YOU have seen parts of the Hornby railway shown above several times recently, but I am sure you will not mind looking once again at an effective section of this railway layout. This is, of course, run by our friends Richard and Neville Sleigh, of Churchdown, Gloucestershire, who, with the help of their father, have some really good times with their railway. Mr. Sleigh has, in fact, been the engineer behind the development of the scheme as a whole, and the station, tunnel and other lineside features, including the fine signal box that you see above, have been constructed by him.

This is probably the last month of the year during which train operations out of doors are comfortably possible.

When running is over

Those of you who have layouts on a baseboard can move them out of doors when weather conditions permit. If your track is not on a baseboard you can lay it on a good level site, but do not forget, permission should be sought first. And be sure to bring everything indoors again when train running is over. It is important to wipe over all items that have been in contact with the ground.

The Sleigh railway spends most of its time indoors, but it is also used outside and numerous different layouts are developed from time to time. This is one of the advantages of having the rails loose, rather than attached to a base, but even if the layout it is intended to put down is already known, movement of the equipment outside and track laying necessarily take up a certain amount of time. Still, whichever way you do things, good fun can be had.

Like the other items on the layout in question, the Signal Cabin shown in our picture is designed on generous lines, and is strongly built. At the same time it has a neat and effective appearance well in keeping with the other items, such as signals and so on that are found along the lineside.

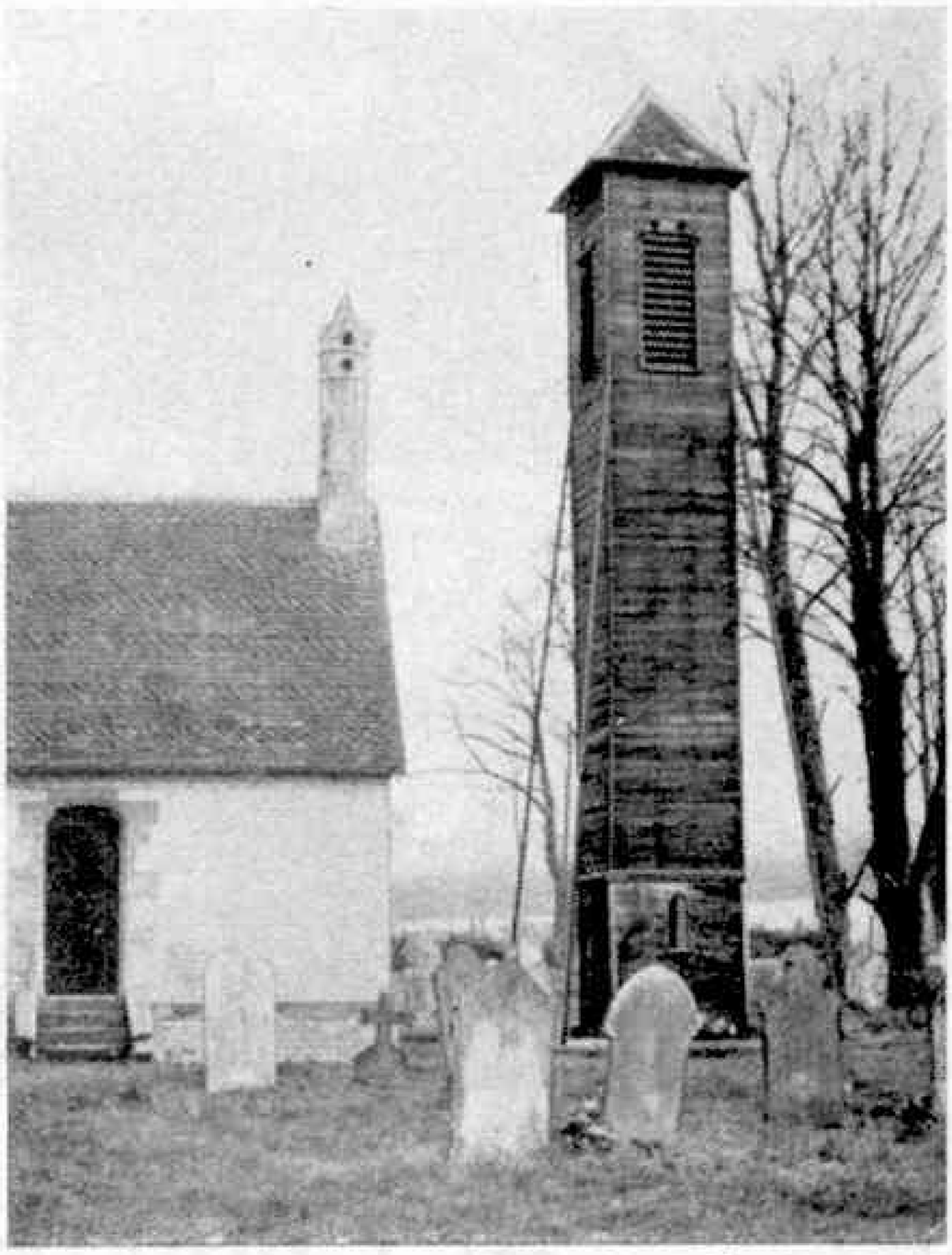
When what we may call the outdoor season finishes, it is time to get our railway equipment ready for plenty of use indoors during the coming months. Before putting our things away it is not a bad idea to clean and oil locomotives, rolling stock and other working items. Rails should be carefully examined and any loose connecting pins tightened up with the aid of a small pair of pliers. Possibly some of the hollow rail heads have become a little distorted with constant use of the track. You can fix these up by placing a spare rail pin in the hollow head and using narrow-nosed pliers to pinch up the web of the rail underneath the pin.

Of General Interest

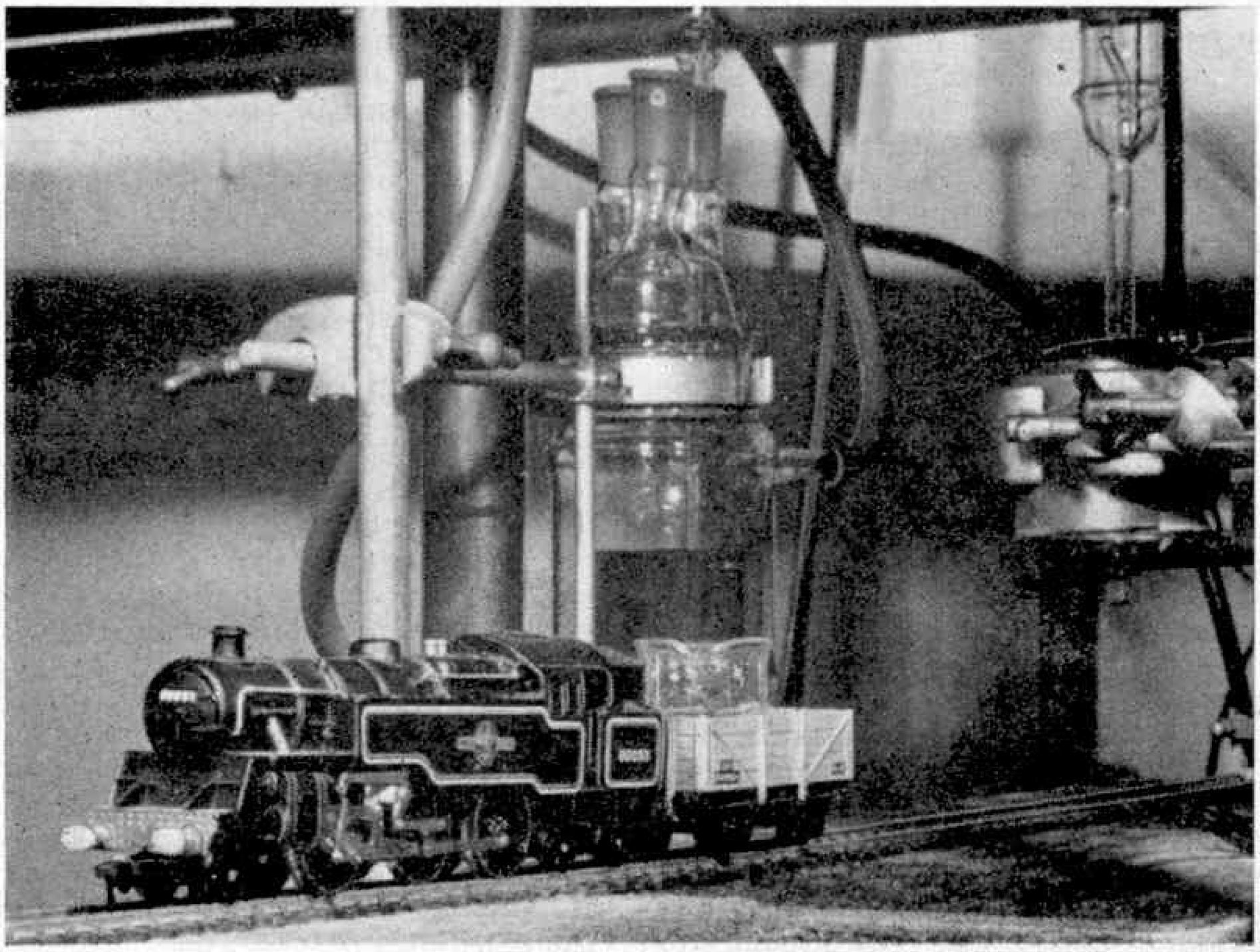
ENGINE No. 80033, a Hornby-Dublo 2–6–4 Tank Locomotive (bottom picture) is doing an important job at the Atomic Energy Authority's Radiation Laboratory, Wantage, Berks., where it collects samples of plastic from a container which has been subjected directly to a beam of radiation. The operation is remotely controlled for a very good reason: a man exposed to this beam for a brief period would eventually suffer from radiation sickness.

At first, it was suggested that a robot conveyor belt should be used to cover the 45 feet from the iron-bound door, which is locked during experiments, to the glass rods and tubes set up for the radiation beaming. Two young laboratory assistants then proposed the use of a miniature electric train controlled from outside the locked room, and the "Wantage Flyer" was bought from a local toy shop. The track was set up inside the concrete walled room, and a system of mirrors arranged so that the scientists outside could see when the train was correctly positioned for loading.

When a sample is required the train is set in motion from outside and is brought to a halt in the right position by means of a photo-electric cell. The sample is electrically pumped through a glass tube, and drips into a beaker in the wagon behind the engine. The train then returns, with sample.



This curious belfry is to be seen alongside the church at Tongham, Surrey (nr. Aldershot). Quite high, and made of wood, it has long poles to support it. The bells are operated from ground level. It was erected as a son's memorial to his mother, who lived at the Great House in Poyle Park. Photograph: Reece Winstone, Bristol.



Autumn Meccano Competition

Prizes For Models Of All Kinds

THIS month we announce the first of the Autumn and Winter General Model Building Competitions in which we offer good cash prizes for the most original and best-built Meccano models, of any kind, sent to us. Every competitor, no matter what his or her age, has an equal chance in this contest, and it does not matter what size of Outfit you possess.

All a reader has to do is to think of a new model, then to set to work to construct it as neatly and realistically as possible from standard Meccano parts. When he has completed his model the next step is to obtain either a photograph or a good sketch of it, and send this to us. The actual model must not be sent. If a photograph cannot be obtained, and an entrant is not good at sketching, he can ask a friend to make a sketch of the model for him provided that the model itself is his own work.

The competition is open to readers of all ages living in any part of the world, and will be divided into two sections as follows:—A, for competitors under 14 years of age; B, for competitors aged 14 or over. A separate set of prizes as announced in the panel at the foot of this page will be awarded in each section.

Before posting your entry write your age, name and address on the back of each photograph or drawing. Address the envelope to *"Autumn Model-Building Competition, Meccano Limited, Binns Road, Liverpool 13"*.

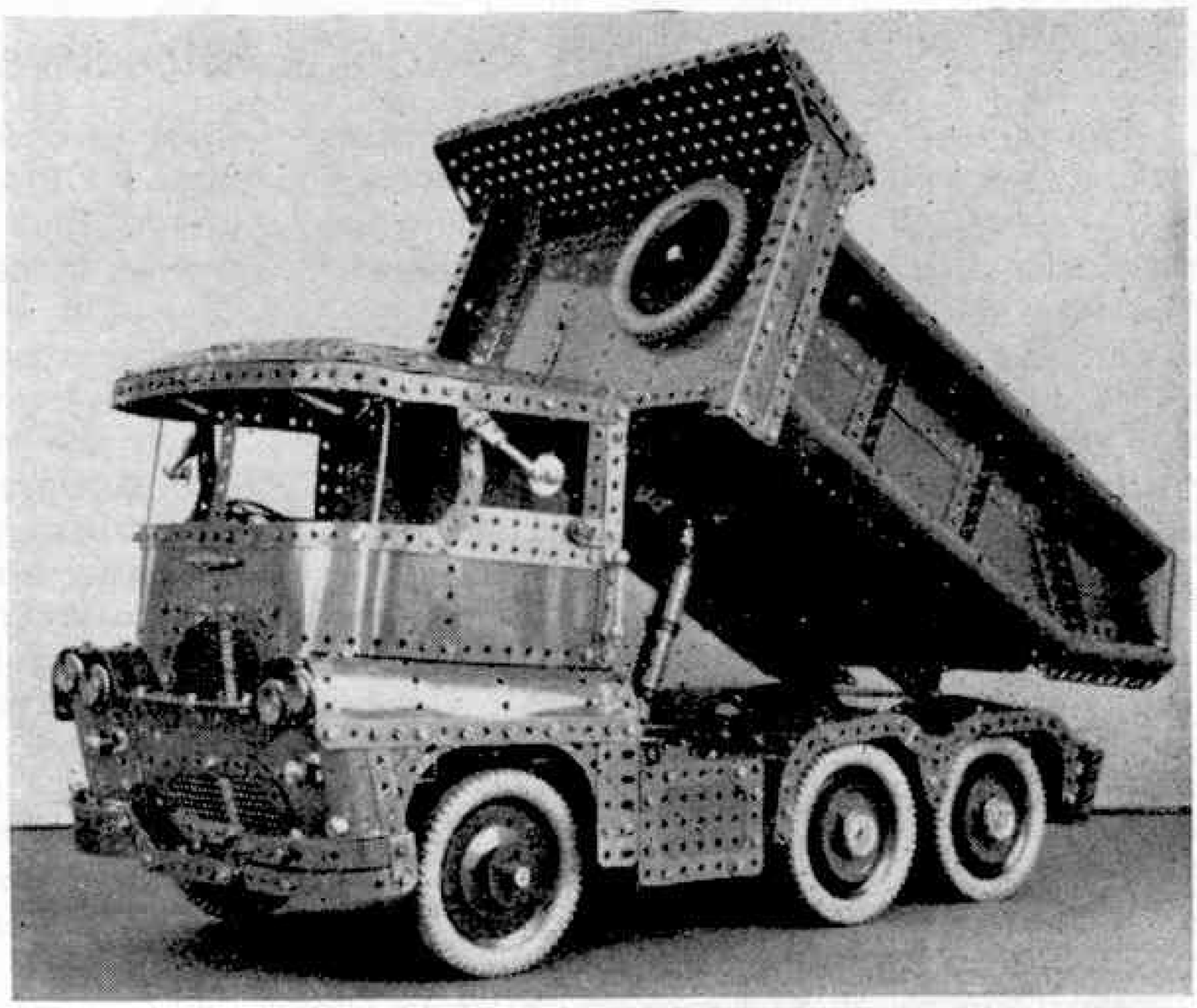
Entries must be posted in time to reach this Office on or before 31st December, 1960.

THE PRIZES

The following prizes will be awarded in each of the Sections A and B.

First Prize — Cheque for £4 4s. 0d.
Second Prize — Cheque for £2 2s. 0d.
Third Prize — Cheque for £1 1s. 0d.
Five Prizes each of 10/6d.
Five Prizes each of 5/–d.

Certificates of Merit also will be awarded.



This finely detailed model Heavy Duty Motor Tipper won a First Prize in the Winter Competition for M. Brookfield, Blythe Bridge, near Stoke-on-Trent.

Prize-winners in the 1960 Winter Model-Building Competition

SECTION A.

First Prize: Cheque for £4.0.0; C. K. Wright, West Bridgford, Notts.; Second Prize: Cheque for £2.0.0; J. L. Tattersall, Garstang, Lancs.; Third Prize: Cheque for £1.0.0; B. Hill, Scarboro, Ontario.

Ten Prizes each of 10/–:—N. A. Tuersley, Winchester; J. Duntemann Chicago; A. Morgan, Lymm, Cheshire; J. Antell, Shillingston, Dorset; J. D. Read, Manchester, 20; R. V. Rooij, Eindhoven, Holland; D. R. Brooks, Southampton; D. Culver, Harlow, Essex; P. Cranness, Norwich; I. Hopkin, London, N.W.3.

Ten Prizes each of 5/–:—P. Webster, Oliviger, Nr. Burnley; R. Wey, Frome, Somerset; P. Knill, Thorpe Bay, Essex; W. A. Jackson, Anlaby, Yorkshire; C. Tennant, Gorleston, Gt. Yarmouth; J. Borkowski, Coryton, Essex; M. Kemp, Lower Hutt, New Zealand; J. Stopford, Dorking; Kwa Chong Guan, Singapore, 3; S. N. Anscombe, Huddersfield.

SECTION B.

First Prize: Cheque for £4.0.0: M. Brookfield, Blythe Bridge, Staffs; Second Prize: Cheque for £2.0.0: D. J. Weir, Oamaru, Otago, New Zealand; Third Prize: Cheque for £1.0.0: A. J. Jones, Port Elizabeth, South Africa.

Ten Prizes each of 10/–:—C. D. Jenkins, Keston, Kent; J. Attard, Marsa, Malta, G.C.; M. Poore, N. Harrow; D. Duffy, Manchester; J. Chrysostom Cooray, Moratuwa, Ceylon; C. Smith, Henfield, Sussex; B. W. Rowe, Newton Abbot, Devon; H. v. Wijngaarden, Amsterdam, 2; A. J. van der Kroft, Amsterdam; G. Preddey, Wellington, New Zealand.

Ten Prizes each of 5/–:—G. Neville, Houghton Hill, Hunts; J. Messer, Carlisle; R. Bond, Leeds, 8; D. Lewis, London, E.11; C. A. Burnett, Mascot, Australia; C. D. Rorke, Ontario; W. H. Ackland, Bristol; G. Gouldson & D. Barrett, Ongar, Essex; J. Manduca, St. Julians, Malta; B. Kirkwood, Belfast, 4.

Among the Model-Builders

By "Spanner"

A Dutch Reader's Attractive Model

The picture on this page shows an interesting and well-built model of an armoured tank fitted with rocket-launching apparatus, that was built recently by E. P. Steffens of Haarlem, Holland. I understand that the model can be built from parts in Outfit No. 10. All six wheels of the vehicle are driven from the Motor through a gear-box which provides both forward and reverse drives.

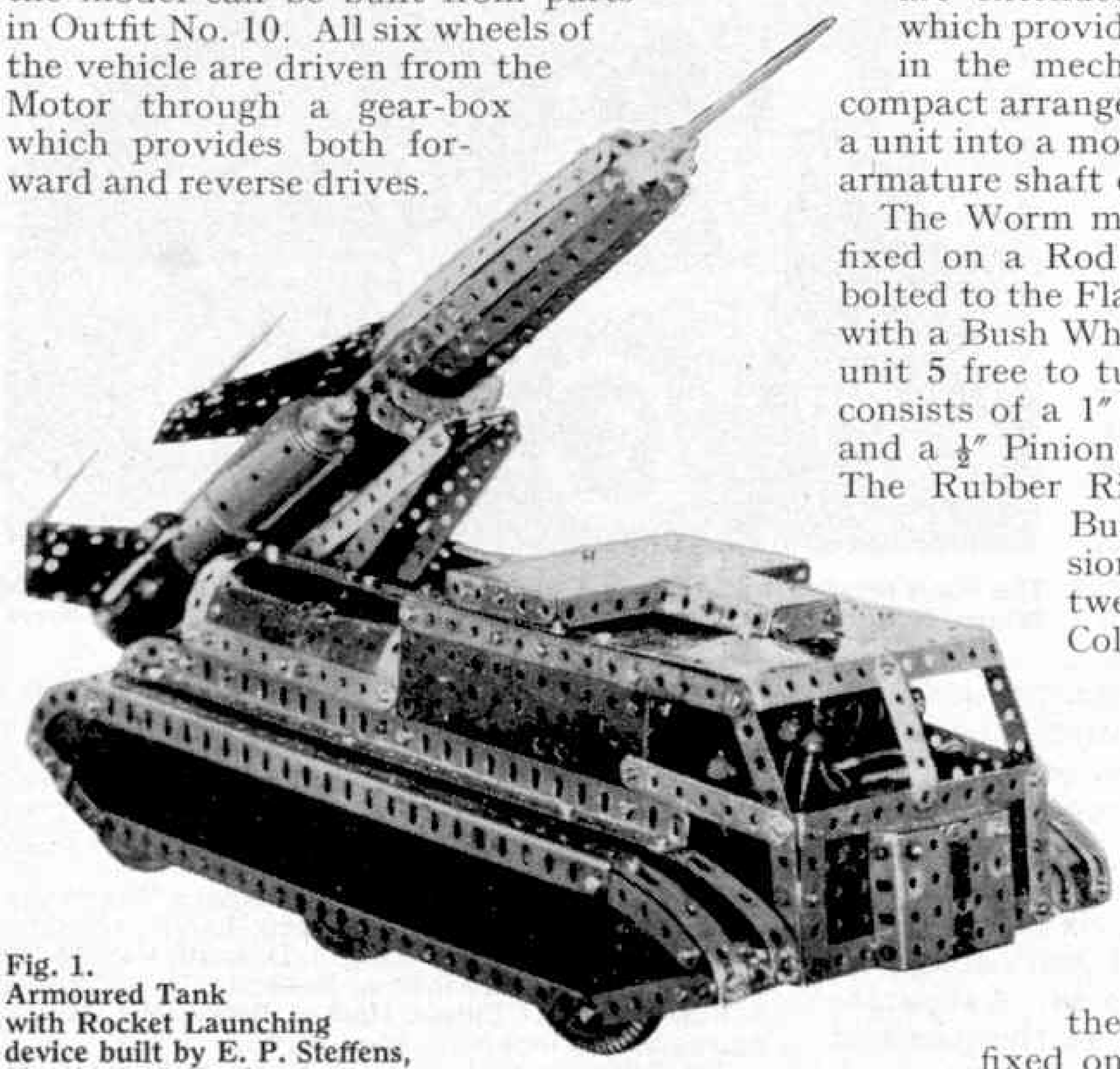


Fig. 1. Armoured Tank with Rocket Launching device built by E. P. Steffens, Haarlem, Holland.

The gear box and rocket launching mechanism are controlled from levers in the driver's compartment.

Friction Clutch Intermittent Drive

Intermittent motion devices are among the most useful of all Meccano mechanisms. They can be used in models such as pile drivers to operate the ram, in cranes to control the raising and lowering of a load automatically, and in countless other models where an intermittent drive is an essential part of the mechanism. In most cases the drive is engaged and disengaged through a Dog Clutch or through sliding gears in and out of mesh, but in models operating at fairly high speeds it may be a disadvantage to use a positive clutch engagement of the kind provided by gears or a Dog Clutch. Fig. 1 shows an intermittent drive mechanism that gives a smooth take up and release through a simple friction clutch.

The side plates of the Electric Motor are extended by $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Flat Plates which provide bearings for the rods used in the mechanism. This results in a compact arrangement that can be bolted as a unit into a model. Each end of the Motor armature shaft carries a Worm.

The Worm marked 1 drives a $\frac{1}{2}''$ Pinion fixed on a Rod 3 supported in Trunnions bolted to the Flat Plates. This Rod is fitted with a Bush Wheel 4, locked in place, and a unit 5 free to turn on the Rod. This unit consists of a 1" Pulley with Rubber Ring, and a $\frac{1}{2}''$ Pinion held in a Socket Coupling. The Rubber Ring is pressed against the Bush Wheel 4 by a Compression Spring, which is fitted between the $\frac{1}{2}''$ Pinion and a Collar. Washers are used for spacing purposes. The output shaft is a Rod fitted with a $\frac{3}{4}''$ Contrate 6 that is in constant mesh with the $\frac{1}{2}''$ Pinion.

The intermittent drive is operated by a 57-tooth Gear driven by the other Worm. This Gear is fixed on a Rod mounted in Trunnions as shown and fitted with a Bush Wheel 7. A Fishplate is bolted at an angle to the Bush Wheel to make a simple cam.

A Rod 8 is supported in the Flat Plates and carries at one end a Coupling that holds a $2\frac{1}{2}''$ Rod. A $\frac{1}{2}''$ Bolt in the Double Arm Crank engages the groove in the Socket Coupling of the sliding unit 5. The position of the Coupling is adjusted so that with the clutch unit engaged the $2\frac{1}{2}''$ Rod bears lightly against the edge of the Bush Wheel. As the Bush Wheel rotates the Fishplate bolted to it depresses the Rod and the action of the Double Arm Crank 9 forces the Rubber Ring away from the Bush Wheel 4 to disengage the drive.

Speed Governor for E15R Electric Motor

Attach a $3'' \times 1\frac{1}{2}''$ Double Angle Strip 1 to the Motor side-plates with Angle Brackets.

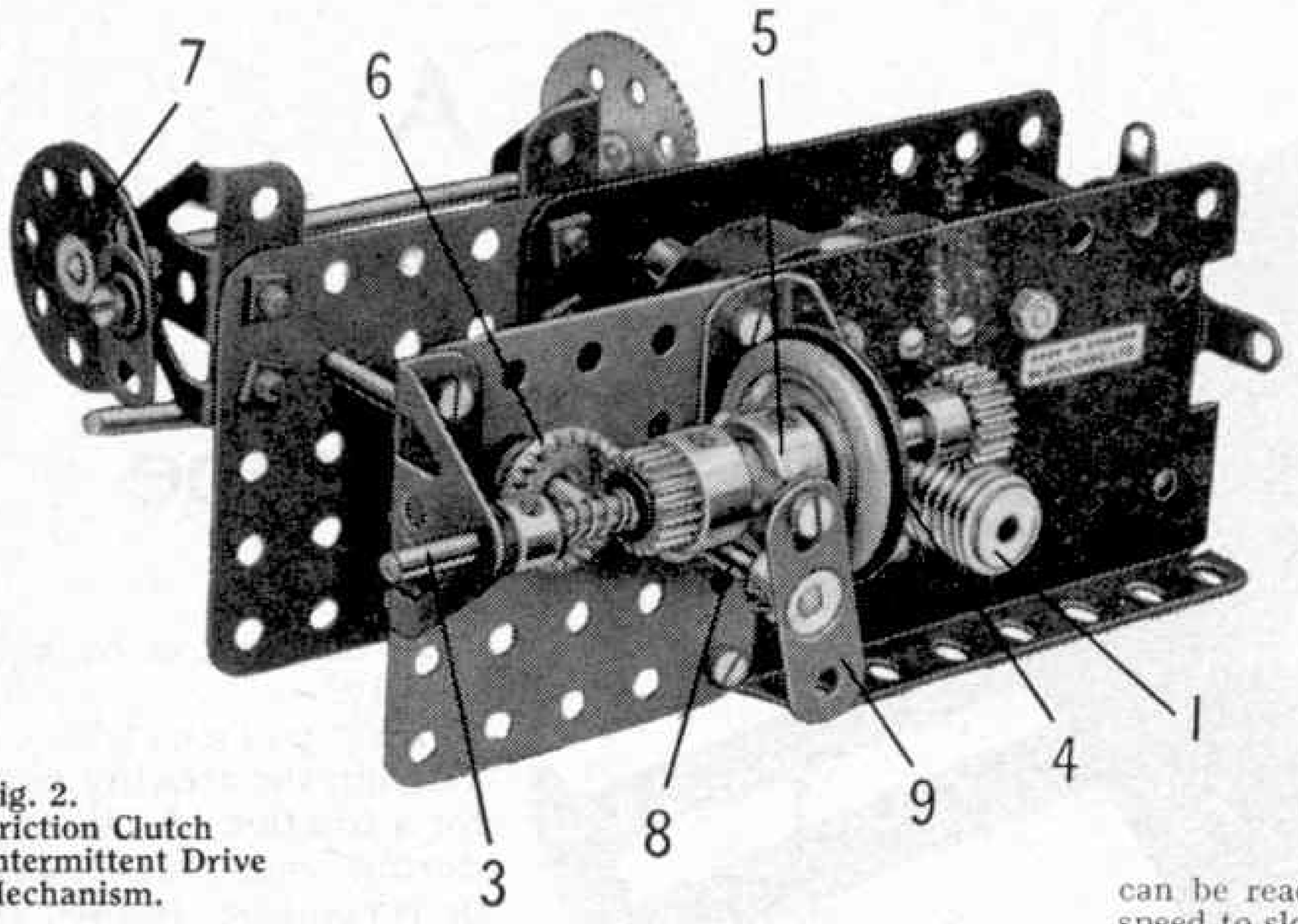


Fig. 2.
Friction Clutch Intermittent Drive Mechanism.

On a 3½″ Rod 2, secure a 1″ Pulley Wheel 3, and a free Bush Wheel 4, Collars are placed on the Rod as shown. Two 1½″ lengths of Spring Cord are attached to the boss of Bush Wheel 4 by nuts and bolts, and also to Set Screws in the boss of the 1″ Pulley 3. A Collar 5 is fastened in the centre of each length of Spring Cord. The Pulley 3 is driven with a Driving Band from a ½″ Pulley on the armature shaft.

In the lower hole of the Double Bent Strip 1, a 3½″ Screwed Rod 6 carries a Threaded Crank 7, and a Double Arm Crank with Threaded Pin is secured to one end. The Threaded Rod is held in position with two lock-nuts on each side of the lug of the Double Angle Strip.

Bolt a 2″ Slotted Strip 8 to each lug of the Double Bent Strip 1. These support a 3½″ Rod 9, on which the Threaded Crank 7 slides and also bears against the Bush Wheel 4.

When the Threaded Crank 7 is farthest away from the driving side of the Motor, the slower the Motor runs.

To make the loops on the Spring Cord, the ends should be held over a match until they are red hot, then it is quite easy to twist them around the bolts.

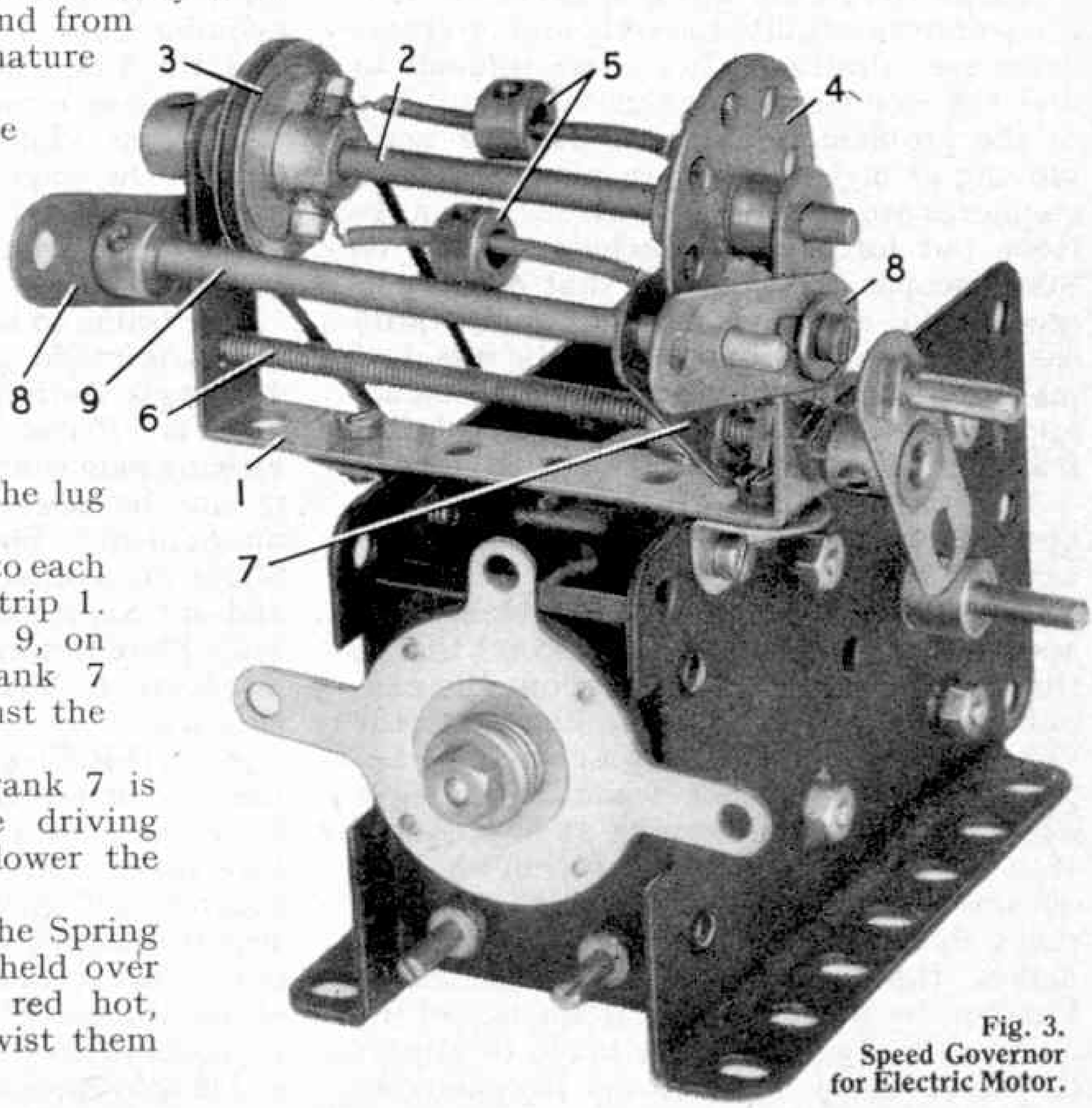


Fig. 3.
Speed Governor for Electric Motor.

Meccano Stroboscope—

(*Continued from page 477*)

Face Plate 3 when the governor is working.

The eyepiece is formed by two 4½″ Angle Girders 11, the lower one of which is bolted to a 5½″ Strip fixed across the frame. A Fishplate 12, mounted on a lock-nutted bolt, serves as a catch to hold the hinged 5½″ × 3½″ Flat Plate in its closed position.

To use the Stroboscope it is held by its handle and the operator looks through the eyepiece at the object to be observed. The Motor should first be allowed to run at its maximum speed, then slowed down gradually by turning the governor control in the retarding direction. In this way the Stroboscope can be readily "tuned in" to the correct speed to slow down or stop the movement of the object under observation.

Parts required to build the Meccano Stroboscope:- 1 of No. 5; 1 of No. 3; 1 of No. 4; 8 of No. 6a; 8 of No. 9; 6 of No. 9a; 1 of No. 10; 1 of No. 12; 1 of No. 16; 1 of No. 17; 3 of No. 18b; 2 of No. 20; 1 of No. 24a; 74 of No. 37a; 65 of No. 37b; 32 of No. 38; 1 of No. 45; 4 of No. 48d; 6 of No. 52a; 7 of No. 59; 1 of No. 62b; 1 of No. 64; 1 of No. 79a; 1 of No. 94; 1 of No. 95; 3 of No. 96a; 2 of No. 109; 1 of No. 111c; 2 of No. 114; 1 of No. 115; 4 of No. 120b; 4 of No. 136; 1 E15R Electric Motor; 8 bolts from Universal Couplings or Swivel Bearings; 1 piece of tinplate or cardboard, 4¼″ × 3⅜″.

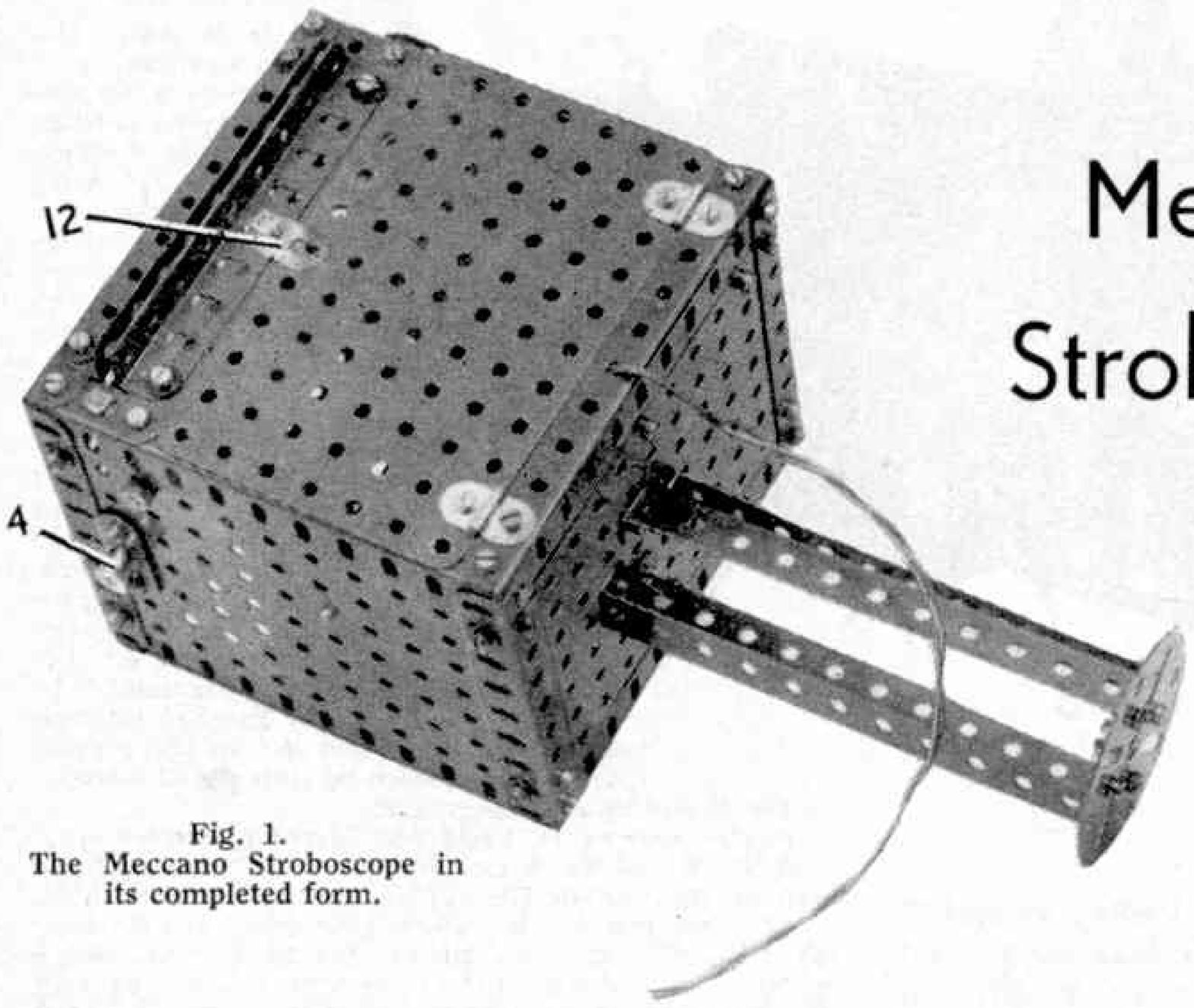


Fig. 1.
The Meccano Stroboscope in its completed form.

A Meccano Stroboscope

EVERY Meccano enthusiast will at some stage in his career have built a working model with parts moving or rotating at high speeds. Sometimes it is found that although the model works reasonably well, it does not run really smoothly and produces excessive vibration. It is often difficult to find the exact cause of this vibration, due to the problem of examing working parts moving at high speeds. In actual practice engineers are confronted with similar problems, but fortunately machines known as Stroboscopes are available that enable engineers to examine moving parts quite easily. These machines have the effect of making rotary or vibrating movements appear stationary, and the value of this feature will be readily appreciated.

The principle on which a stroboscope operates will be understood quite easily by carrying out a simple experiment. Stand in front of a pendulum-operated clock, but open your eyes only at each second tick of the clock. Under these conditions the pendulum will appear to remain in exactly the same position, and no swing will be apparent. Now consider a similar principle adapted to a wheel turning at high speed. If a momentary glimpse of the wheel is obtained only once and at exactly the same point during each complete revolution it makes, the wheel will appear stationary. Further, by regulating the frequency of the glimpses the wheel can be made to appear to rotate slowly, so that any irregularities in its motion can be seen readily.

The principle of viewing the moving part for a fraction of a second during each movement or revolution, is used in the Meccano Stroboscope seen in Fig. 1. The model is fitted with an Electric Motor, that drives a cardboard cylinder at high speed. Slots are cut in this cylinder, and the operator looks at the object to be observed through an eyepiece placed at the same level as the slots. It will be apparent that his vision is obscured by the cylinder except when the cylinder slots are in line with the eyepiece, and the frequency with which this takes place varies according to the speed of rotation of the cylinder. A governor is fitted to control the speed of the cylinder, so that it can be regulated until the movement of the object being observed is apparently brought to a stop.

The frame to house the mechanism of the model is made quite simply from $5\frac{1}{2}''$ and $4\frac{1}{2}''$ Angle Girders, and is filled in by $5\frac{1}{2}'' \times 3\frac{1}{2}''$ Flat Plates. The Plate fitted to the viewing side is attached by Hinges, so that it can be opened to give access to the mechanism. Four $5\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips are bolted to the base of the frame, and are connected at their lower ends by a Face Plate to form a handle. This handle is employed to hold the Stroboscope when it is in use.

An E15R Electric Motor is bolted to the base in the position shown in Fig. 2, and a $\frac{3}{4}''$ Sprocket is fixed at each end of the armature shaft. One of these is connected by Chain to a 2" Sprocket 1 on a $3\frac{1}{2}''$ Rod. This Rod is the governor shaft and it is mounted in one side of the frame and in a hole in the Motor sideplate. The Rod is held in place by a Collar 2.

The governor is shown in Figs. 2 and 3.

Two Handrail Supports are fixed in diametrically opposite holes in the Sprocket 1, and two similar parts are attached in the same way to a Face Plate 3. This Face Plate is free to slide on the governor shaft, with four Compression Springs on the shaft between the Face Plate and the Sprocket 1. Washers placed between the Compression Springs prevent them screwing inside each other. Two $1\frac{1}{2}''$ Strips can now be attached to each Handrail Support. These Strips must be free to pivot, and they are therefore, mounted on the special bolts provided in Universal Couplings and Swivel Bearings, the bolts being screwed tightly into the threaded holes in the Handrail Supports. The pairs of Strips are then coupled together by 1" Rods, with Collars to hold them in place.

The revolving cylinder can now be made and fitted in place. The assembly of this part of the model should be carried out very carefully to obtain the best results. A piece of thin tinplate or cardboard is required, and must be cut to $4\frac{1}{4}'' \times 3\frac{5}{8}''$ in size. Four slots, each $1'' \times \frac{3}{16}''$ are cut lengthways in the material, so that they are in pairs exactly opposite to each other when the material is rolled into a cylinder. The metal

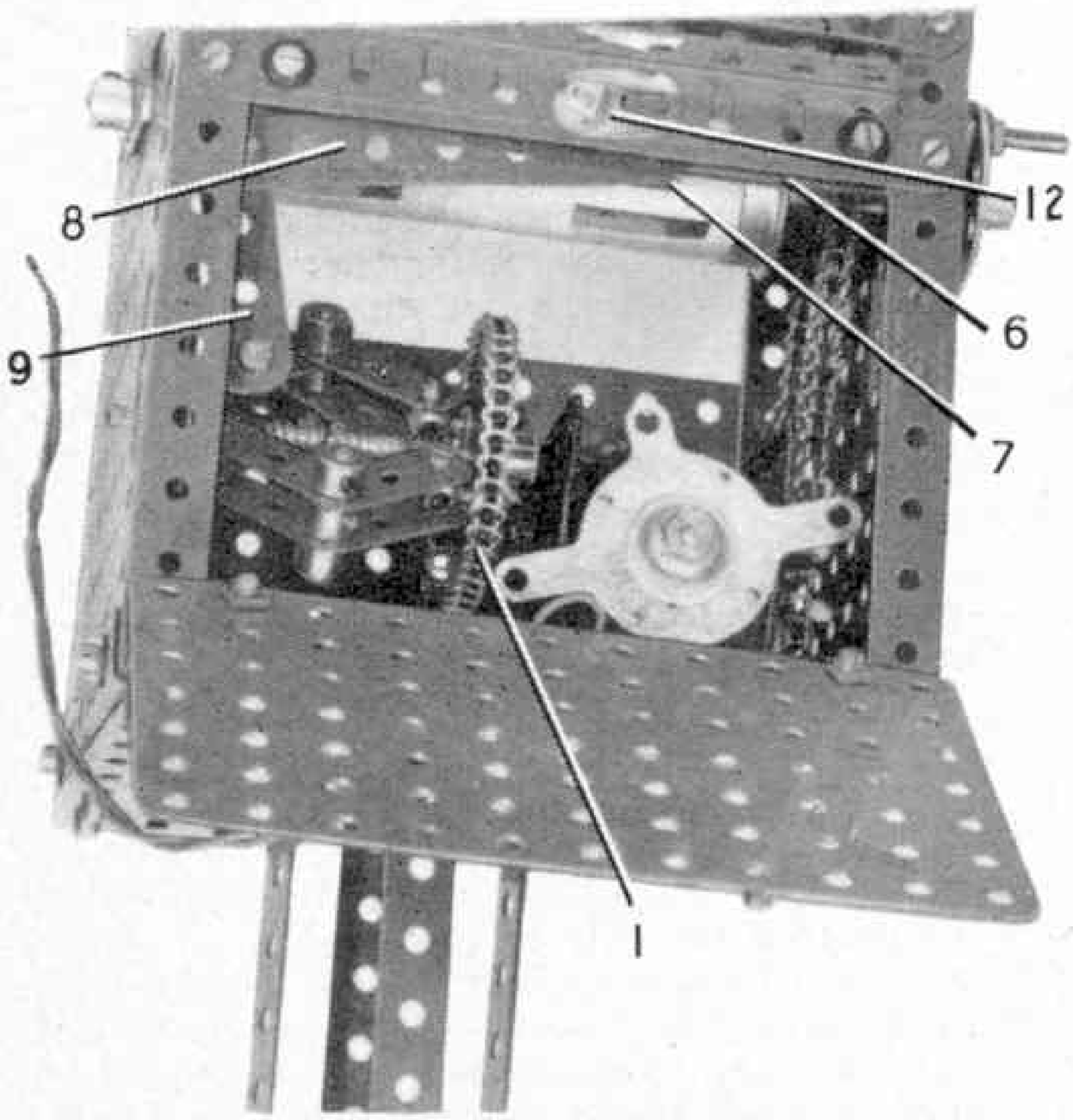


Fig. 3. Another view of the Stroboscope showing the rotating cylinder.

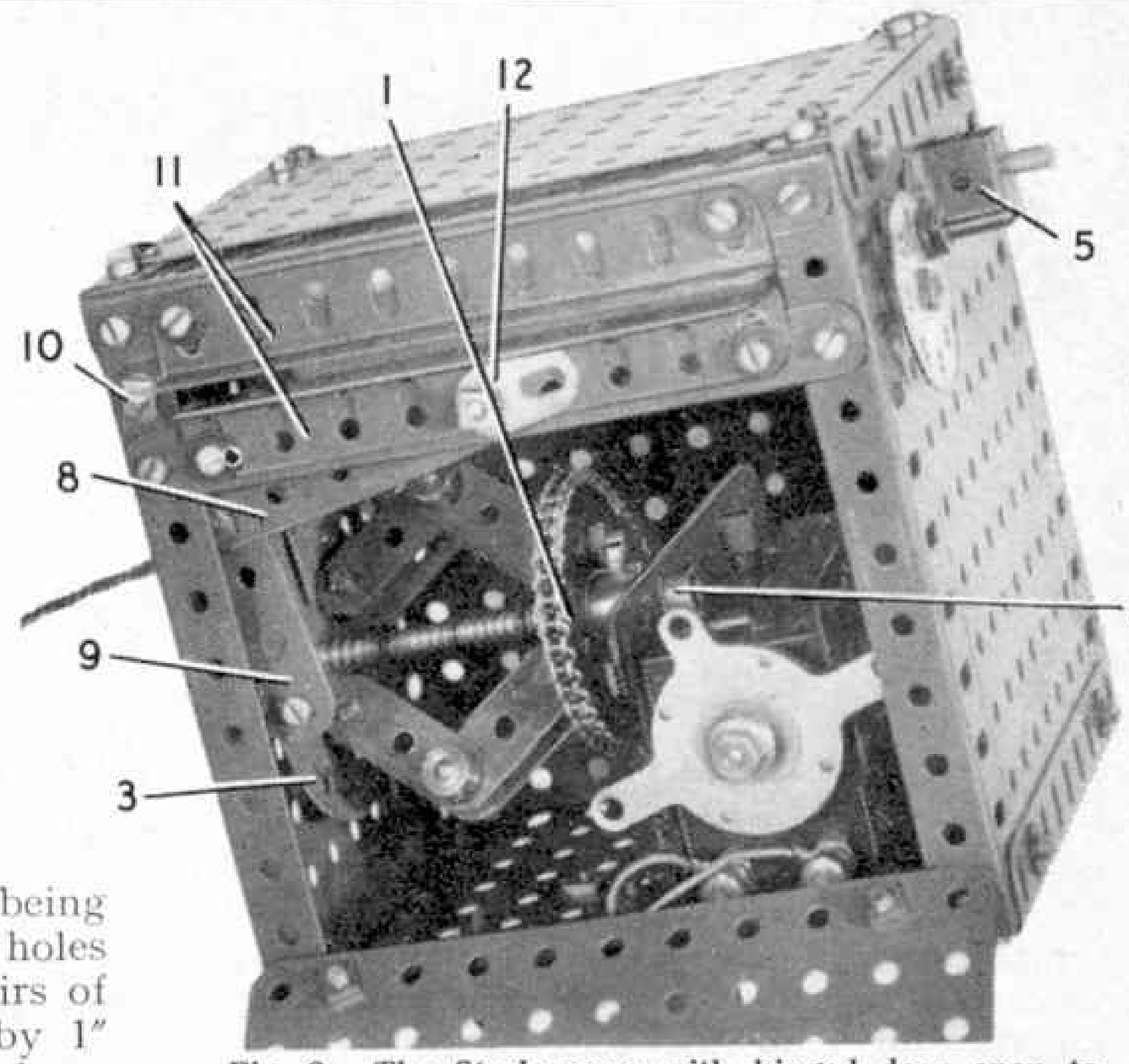


Fig. 2. The Stroboscope with hinged door open to reveal the position of the driving Motor. The governor mechanism can also be seen.

or cardboard can now be rolled to shape, and a $1\frac{1}{8}''$ Flanged Wheel pressed over each end. The seam in the cylinder is then jointed using glue or solder according to the material from which it is formed.

A Double Arm Crank 4 is bolted to one side of the frame (Fig. 1) and in it is fixed a 1" Rod. One Flanged Wheel of the cylinder is freely mounted on this Rod, and a 2" Rod passed through the other side of the frame and through a Double Bent Strip 5, is fixed in the other Flanged Wheel. A $\frac{3}{4}''$ Sprocket on the 2" Rod is connected by Chain to the second $\frac{3}{4}''$ Sprocket on the Motor armature shaft, see Fig. 3.

The governor control mechanism is made by passing a 6" Screwed Rod 6 through the sides of the frame. At one end lock-nuts are used to hold the Screwed Rod in place, and at the other end a Wheel Disc is clamped tightly between two nuts. A Threaded Pin in the Wheel Disc serves as a control handle. A Threaded Boss 7 is screwed on the Screwed Rod and a $3\frac{1}{2}''$ Strip 8 pivots on a bolt held in the Threaded Boss by a nut. The bolt must not grip the Screwed Rod. Strip 8 is lock-nutted to a 3" Strip 9 that pivots freely on a bolt 10, which is fixed in the frame by two nuts. An Angle Bracket bolted to the lower end of Strip 9 acts as an adjustable stop, and rubs against the

(*Continued on page 475*)

WITH THE SECRETARY

Club and Branch News

OFF TO A GOOD START

I AM pleased to announce the formation, in July, of a new Branch of the Hornby Railway Company at the Y.M.C.A. Club, St. Annes, Lytham St. Annes. This Y.M.C.A. on the Fylde coast—the only one over an area of many miles—has an enthusiastic membership who take part in all types of activities. The H.R.C. Branch is the Club's latest development.

Before the Branch was formed, I was invited to the Club and had the great pleasure of addressing the members of the model railway section. I found them filled with enthusiasm for their hobby, and I felt that the journey to their headquarters had been well worth-while. The Chairman of the new Branch is Mr. Wilfred H. Pickett, a stalwart of the Club for many years, and the Secretary is Mr. James Lyall, a model enthusiast of the first order.

Nearly a dozen members were among those to join the Club at its formation and present indications are that the membership will far exceed this number within a few weeks. At the time of writing the Club members are putting down a very fine layout in their model room, and they tell me they have overcome one headache by fitting an ingenious section over the doorway. This section can be lifted up and down when anyone wishes to enter the room and the members feel it is a considerable achievement. Track work round the room will have been completed by the time these notes appear and much attention is to be devoted, at a later stage, to the scenic aspect.

The Branch members are fortunate in being able to meet in a very fine room which is at their disposal through the kindness of the Secretary of the Y.M.C.A., Mr. Harry Richards, who has given the Branch every possible support and who has worked tremendously hard to help to bring it into being.

Shortly before my visit the Club had held an Open Night, one feature of which had been a Model-Building Competition. Some very fine work had been put in by the young members and some very realistic lineside buildings have been created. All this enthusiasm augurs well for the future of the new Branch.

Autumn Planning

This is the time of year when Club and Branch committees get down to the business of drawing up the programme for the first of the Winter Sessions, which usually begins toward the end of this month. In Clubs, Meccano model-building and Dinky Toys activities are the "backbone" of the programme, and in H.R.C. Branches the members are engaged in Hornby-Dublo and Hornby Gauge 0 operations, and the further development of the Branch layout or layouts.

It is possible to have too rigid a programme, however, and a little variety is all to the good. This can take the form of film shows, indoor games, quiz evenings, and handicrafts such as fretwork and photographic work, and an occasional outdoor "break" by visiting some local place of engineering or railway interest. A Parents' Night, when members' parents are invited to come along and see for themselves just what is done, is an excellent thing, and every Club and Branch should make a point of having at least one such Night each Session.

H.R.C. Branch recently incorporated

No. 577 ST. ANNES Y.M.C.A.—*Chairman:* Mr. W. H. Pickett, Y.M.C.A., St. Alban's Road, Lytham St. Annes, Lancs.

CLUB NOTES

AUSTRALIA

MAYLANDS M.C.—Outstanding models completed recently have included an electric derrick crane, Baltic tank locomotive and road surfacing machine. A special 25th Anniversary Thanksgiving Service was held in June at the Memorial Hall, and was conducted by the Rev. C. J. Mackay, father of two of the Club members. Music

A happy group of Christchurch (New Zealand) M.C. officials, members and parents on the occasion of a recent Parents' Night. In the back row Mr. C. E. Saunders, President, is at the extreme left and Mr. P. Saunders, Treasurer, on the extreme right. Mr. R. Boundy, Secretary, is fourth from the right in that row.

was provided by the Highgate Salvation Army Band which includes the father of another of the Club members. On the last Sunday in June members joined the Australian Railway Historical Society in a ramble by rail from Perth to Fremantle and back. Other activities have included a visit to a local theatre and a cycle run. *Secretary:* Warren Bransby, 90 Crawford Road, Maylands, Australia.

NEW ZEALAND

ST. JOHNS (DUNEDIN) M.C.—An anonymous donor has presented a No. 4 Meccano Outfit to the Club, which has also received from Mr. Hyslop a Shield that will be presented annually to the member with the best average of marks. Model-building has continued, and models completed have been awarded marks and have been demonstrated. A Go-Kart race proved very exciting. A Club newsheet has been started. *Secretary:* William J. Earl, 60 Ann Street, Roslyn, Dunedin, New Zealand.

NIGERIA

GINDIRI BOYS' SECONDARY SCHOOL M.C.—Each model-building group consists of four members, one of whom is an older member able to direct the others. One group has continued work on the No. 10 Meccano Outfit model 4–4–0 passenger locomotive and tender. Another group is busy building two relatively small models, the No. 4 Outfit model sewing machine and the No. 3 Outfit model portable garage crane. *Secretary:* Mtaku G. Mshelia, Gindiri Boys' Secondary School, P.O. Barakin Ladi via Jos, Northern Nigeria.

BRANCH NEWS

LUTON COUNTY SECONDARY SCHOOL—Good progress is being made in constructing the scenery for the Branch layout, mentioned in an earlier report. The scenery consists basically of shaped hardboard, on which moulding of the landscape is achieved by using a mixture of papier-mache and plaster of paris. The surface prepared in this way is then covered with sawdust and painted to suggest grass. The steep edges have been left white to give the appearance of a railway cutting through chalky soil. A vote of members was taken to find out which type of locomotive should be bought, and resulted in favour of a Hornby-Dublo Two-Rail Tank Locomotive. *Secretary:* Ronald J. A. Scott, 7 Victoria Road, Hitchin, Herts.

NIGERIA

GINDIRI BOYS' SECONDARY SCHOOL—Alterations to the Branch layout have been carried out. Some time has been devoted to experiments by different groups of members to determine which is the most efficient of the Branch's three locomotives. *Secretary:* Mtaku G. Mshelia, Gindiri Boys' Secondary School, P.O. Barakin Ladi via Jos, Northern Nigeria.

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For Stamp Enthusiasts

What Shall I Collect?

By F. E. Metcalfe

From the letters I receive, it is obvious that many young *Meccano Magazine* readers are interested in the hobby of stamp collecting but, in spite of a desire to get to grips with its intricacies (if I may be allowed to use that word in connection with a hobby which really has a lot to it, and which is probably the reason why it is a world-wide cult), they not only do not know much about its finer points, but are also rather at a loss to find out where they can get the information they lack.

A letter I received recently from a West Derby (Liverpool) reader is typical of many sent to me seeking all sorts of information. Let me quote:– "I am thinking of taking up stamp collecting again. I first began in about 1954 with a looseleaf album and a few stamps which had been my sister's. Now, after giving up loco-spotting, as I was finding it increasingly difficult to convince booking clerks that I was two years younger than I really am (naughty, naughty!), I think I would like to start again with stamp collecting. I realise that general collecting is useless to attempt. I have always liked British Colonials so they appear to be my best choice. But surely there are not going to be as many countries to collect in the future? I refer to countries gaining their independence from Britain. I would also like U.S.A. stamps, as I like their fine pictorials and commemoratives. Will I have to buy a Gibbons Simplified Catalogue to get one which contains U.S.A.? Does the Simplified contain British Colonials? Do you think four shillings approximately, per week, is enough for QEII and KGVI Colonials and U.S.A. to build up a decent collection? How much should I pay for good stamp hinges?"

I have quoted parts of this letter, which was beautifully written (I wish all correspondents in this country—which must surely contain the world's worst scribblers—would take half as much care to write as clearly as this correspondent did) because it contains questions which, if I can answer them satisfactorily, will solve problems for many other would-be philatelists. Well, I will try to give the answers, and for a start will take up the point about the impracticability of trying to get anywhere with a general collection. When you tell this to a non-collector, and explain that the reason is because nowadays there are far too many stamps being poured off the presses all the time, the reply you get is that, surely, the more stamps there are the easier they are to collect.

Plenty of stamps, yes, but there are far too many for real progress to be made. A collector, if his hobby—any hobby—is not going to palk, must feel he is not only making progress (he might consider he was doing that if he gathered a lot of stamps), but that he stands some chance of reaching his target. I am afraid that it is nearer sixty than fifty years since I got my first foreign stamps, and a few years later I was presented with my first album—one which contained room for a good percentage of all the stamps which had ever been issued. In fact, in my early collecting days we used to go in for seals, and stamps cut out of post-cards, etc., in order to fill up space. Thus, general collecting was the rule and looking back I cannot recall anyone who did not go in for the whole world's issues. Alas, one has to keep on one's toes nowadays to take up the new issues of, say, only the British Commonwealth, (*Continued on page 484*)

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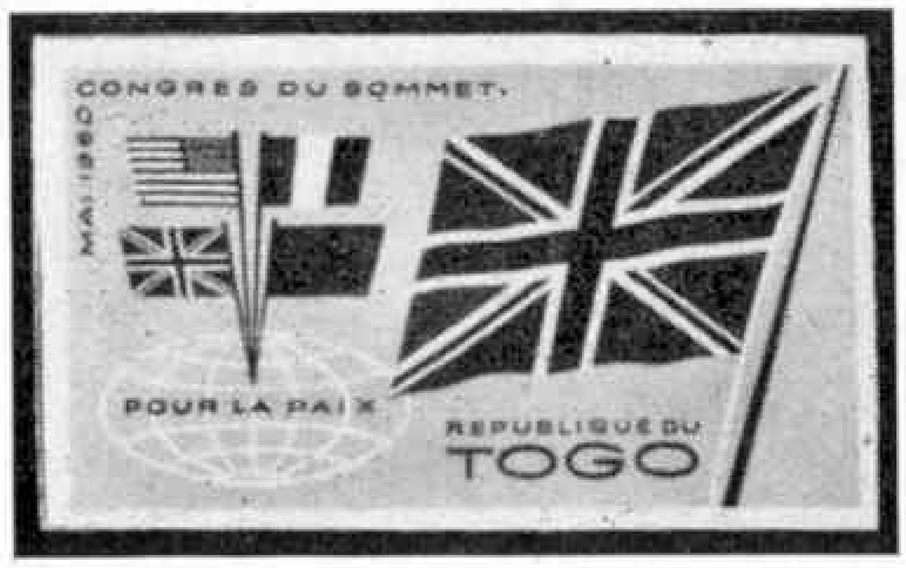
Stamp Gossip

THE SAFEST INVESTMENT

Stamp collectors in general (that is real collectors, and not those who pick up an odd stamp here and there and stick it into a book) spend more on their hobby than they would willingly throw away, which is the reason why I like to take the greatest care not to suggest the purchase of stamps which are at all expensive, or which have little re-sale value. At the same time, collectors do consider the investment angle when spending substantial sums, and they are quite right in doing so, for they are not thereby merely considering what they might make out of their collections, but are safeguarding their own expenditure. Even so, it is not easy to make a profit on any ordinary stamp collection. There are, however, stamps on which you cannot lose—National Savings Stamps, and two new designs have just been introduced. They are the 6d. value, bearing a portrait of Princess Anne, and the 2s. 6d. value, which has a picture of the Prince of Wales. Collecting these will not, perhaps, yield as much fun as going in for postage stamps, but I must admit they could prove a better investment.

Of course, some lucky people can make money out of postage stamps. For instance, a month or two ago a collection was sold by auction which, if my memory is correct, realised a figure in the teens of thousands. Some years before the collection had cost the owner only about £3,000.



SUMMIT CONFERENCE SET

Let us admit it, many postal administrations are on the lookout for excuses to issue new postage stamps. Let us also admit that, generally, such stamps are so attractive that those of us with the collecting itch find it very difficult to ignore them. Still, if you buy the set and take care of them, you are not likely to lose much when you come to sell. There will be instances, in fact, when they may bring a bit more than they cost, but don't bank on that. In view of all this, it was to be expected that stamps would appear somewhere marking the Summit Conference which was to have been held in Paris, in May. The new Republic of Togo was the first in the field, with a set of four, each one showing the flag (as in the illustration) of one of the participating nations in large size and the four flags in miniature. Quite a nice set, if you collect Togo, but not very apt, in the view of the fact that there was no Summit.

ON POSTAL STATIONERY

In the early days, when stamps were relatively scarce, collectors used to cut out impressed stamps from postcards, etc. to fill up, as it were. Then came the deluge; torrents of stamps meant that far from there not being enough stamps to keep one occupied, there were far too many for a general collector to cope with. Thus group collecting (limiting one's interest to a number of countries) took the stand and, in a lesser degree, postal stationery became fairly popular. Just a word now on that branch of our hobby. I think it was the introduction of aerogrammes (the sheets you can obtain at the Post Office at 6d. each, and which are a cheap means of air communication) which really gave the collecting of postal stationery a fillip. The Editor of the *M.M.* recently showed me an illustration of a newly-designed aerogramme for Canada, and it is a fact that a very interesting collection can be made of such things, for designs (even our own) change from time to time. By keeping one's eyes open, it is possible to pick up these letters (for that is really what they are) for nothing. It is surprising what a collection you can gather by using enterprise.

NEW ZEALAND DEFINITIVES

All stamp collectors know that definitive stamps are those which are supposed to remain on sale (*Continued on next page*)

Stamp Gossip—*(Continued from previous page)*

for a long time. They also know that, nowadays, most countries outside the British Commonwealth do not keep any stamps on sale for very long. Our Commonwealth is generally the exception, so it is an event when a country such as New Zealand issues a definitive set, as was done on 11th July. Actually, not all came out then, but the few remaining values will appear later in the year, together with a 9d. value which will depict the New Zealand flag. It is a fine set (New Zealand stamps are handsome, in the main) and it consists of designs showing flowers—some beauties here—industries and views. Having room for one illustration only of these new stamps, I had an awful job picking a single out. Fortunately, as New Zealand is an important country which uses a lot of stamps, used copies will gradually become fairly common, and consequently cheap, so if you cannot afford a mint set (and which of us can, when it has a face value of over £2?) you will be able to pick one up used, by degrees, for a quite small sum. So have patience, and you may become the owner of a fine set for your "QE" collection.

THE TIP OF THE MONTH

It is an easy matter to pick out expensive stamps which will become more expensive later on, and are thus worth buying, but we haven't always cash for these dear items, so we must search for the cheap ones. And here I am going to suggest you make sure of obtaining used sets of the cheap commemorative issues, which Malaya (including Singapore) issues from time to time. Several such sets have been issued during the present reign; all are cheap (at the moment) and all are worth picking up. They make a very nice show, if nothing else. Later on, I think, they will rise in price; not to big prices, but above present levels, at least.

For Stamp Enthusiasts—*(Continued from page 481)*

let alone the stamps of the world.

My correspondent apparently favours the stamps of the Commonwealth issued since King George VI ascended the throne, and that is as good a selection as any, if one wishes to consider the re-sale value of one's stamps. But apparently there is a limit of around four shillings a week on what he can afford to spend on the hobby, so I would suggest that no attempt be made to buy any stamps which have a face value of over one shilling, and even then there will be quite a few stamps belonging to the KGVI group of that face value which now cost more than our collector can afford. I would, therefore, suggest that the scope of the collection be limited to the stamps of the present reign; then a quite worthwhile lot can be gathered as time goes on, and indeed the spending can be a little under the four shillings limit. I am going to suggest still further that the collector should not undertake a collection that is going to be a strain on his pocket money.

Suppose one is allowed five shillings; half that sum is the top limit which should be spent on stamps, even though, in the case of a nice mint "QEII" collection, the re-sale value is appreciable and much more than would be the case if one had bought odd stamps from here, there and everywhere. It is, indeed, the indiscriminate buying of any odd stamps which may take one's fancy which results in the big loss when the stamps come to be sold, and which so discourages collectors. But going in for a limited group, like our Commonwealth stamps of the KGVI, or the QEII reigns, will eliminate a good deal of that re-sale loss, and my correspondent will be making a good choice if he goes in for those stamps.

But there are other groups of stamps well worth collecting. Take French Colonials, for instance. No stamps could be more attractive than these, for some of the designs are magnificent. There is also France itself to be considered. Here, there are plenty of stamps to go at, and if a collection is limited to the issues of the last twenty years or so, and also restricted to "used", one would not need to spend four shillings a week in order to get together a really worthwhile lot. Nicely mounted and well written up such a collection would be worth showing to collector and non-collector alike.

And there is the point put by my correspondent (which shows that his collection will be on the right lines) about what price he should pay for *good* stamp mounts. Now first of all, it is necessary to use good mounts, for the days when bits of stamp edging would do are long past; so much so, in fact, that if you tried to sell a mint stamp which had been mounted at one time with a piece of edging you would not find a buyer, unless it was at a sharply cut price. Good mounts (and none are better than those manufactured in Britain) can be bought for about 1s. 3d. per thousand. Brands like Paramount and Peerless are first class.

But to get back to what to collect. I have suggested that if you want to go outside the Commonwealth, French and French Colonies are a good choice, but Portugal and her colonies also take a lot of beating. Fishes, butterflies, maps, etc., are the tops for thematic collectors, and for we more ordinary collectors as well. And don't overlook Spain, for nowadays Spain is also producing some really beautiful issues. Take the recently released "Bull Fight" issue as an example. Oh, I know all the arguments against bullfights, and I am certainly not lending support to such events. As a matter of fact I lived for years close to where bullfights were being held, and never paid more than one visit; but it is stamps we are dealing with, not corridas.

And I have not yet mentioned U.S.A. stamps, which my correspondent favours, and in this he is only one of many. For years now America has been issuing, every few weeks, a stamp or stamps to mark some event. Not all are out of the designer's top-drawer. Few equal those of the continental countries I have mentioned, but almost all are of interest, and all are worth the small sums they generally cost, used. I recently saw a junior's collection of these stamps. It had won a prize, and indeed it was worth a prize, yet I question if more than thirty shillings had been spent on all the stamps it contained.

And there I must leave the question of what to collect. If you have plenty of money, indulge in your taste; if pocket money is limited, like that of my correspondent (alas, I never had so much) then consider what I have written. It is based on much experience.

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The Seaside Lights—(*Continued from page 443*)

peculiar problems although considerable research in recent years has solved most of them. Often the bleaching effect of the sun and air has caused trouble with the colours of the displays, and the blasting action of storm-carried sand has seriously affected electrical equipment.

Tests have shown that yellow is the most suitable colour and blue the least effective, so that designers of seaside illuminations now keep this point well in mind when preparing their colour schemes.

To-day, leading sculptors and artists are sometimes engaged by resorts to model figures and scenery. Blackpool and Morecambe both employ five artists. It is, indeed, a tribute to the high standard of seaside Lights that Royal Academicians have agreed to take on such work.

Autumn gales are the biggest enemy of seaside illuminations and rough weather gangs are always ready to go into action if high winds threaten damage. In normal late-season weather, one-quarter of the electric lamps may have to be replaced during the period of the illuminations. A severe storm may put a much bigger number out of action.

However, every year the illuminations get better and their popularity increases, making them a traditional feature of many British holiday resorts. Without them, the modern holiday season would certainly seem incomplete.

New Pacific Telephone Cable—(*Continued from page 437*)

failure of one amplifier the other will continue to work. The life of the valves is designed to be not less than 20 years, but any fault developing could be detected at the shore station. The whole repeater is enclosed in a rigid water-tight case nine feet long and ten and a half inches in diameter.

Only one ship suitable for laying the cable is available at present, the United Kingdom Post Office Cable Ship *Monarch*, biggest cable ship in the world. Another ship, *C.S. Ocean Layer*, which was to have assisted *Monarch*, was unfortunately destroyed by fire when operating in the Atlantic last autumn, and although there are many smaller ships in service they are used mainly for repair and maintenance work or the laying of shorter lengths.

Consequently Cable and Wireless Ltd., have decided to build a new cable-layer, the first ever designed to handle all types of cables and amplifiers. Specifications for the new ship are being drawn up now but her main features will be approximately as follows: Gross tonnage 7,000; steaming range 8,000 miles; sea endurance 60 days; maximum speed 15 knots. Carrying capacity will be 1,200 miles of light-weight telephone cable with repeaters or 1,500 miles of ordinary telegraph cable. She is due to be launched in 1962.

A new cable repair ship is already under construction by Cammell Laird & Co. (Shipbuilders and Engineers) Ltd. of Birkenhead, for Cable and Wireless Ltd. and will be the first ship of her kind designed to handle all modern types of cable and repeaters. Her gross tonnage will be 4,000; maximum speed not less than 15 knots; steaming range 8,000 miles; sea endurance 50 days, and she will be able to carry about 420 miles of deep sea cable in three tanks. A similar ship is under construction for the U.K. Post Office.

The Commonwealth round-the-world telephone cable, of which the Pacific chain forms a part, will consist of 28,000 miles of similar-type cable encircling the world and linking the countries of the Commonwealth.

Communications overland will be provided by the countries in which the cables land. This follows the existing route of the Cable and Wireless Ltd. telegraph cable system and the company will be responsible for financing, laying and maintaining the United Kingdom's share—expected to be about half.

The cost of the cable will be about £80,000,000 and it may take up to ten years to complete. When it is finished, however, the Commonwealth countries will be uniquely served in the matter of communications.

It may be questioned whether there will be a demand for such a generous service by the countries concerned. There were many experienced people who felt the same doubts when the Transatlantic Telephone Cable began operating between the United Kingdom, Canada and America in 1956, but within a very short time traffic was at a level which had been forecast for years ahead, and although the original 36 telephone channels have been increased to 56 there is still likely to be delay during the busy hours.

Barge Lift on the Weaver—(*Continued from page 441*)

To avoid hindering traffic the new lift was built around the old one. Begun in 1906, the job took two years to finish and the new upper works weighed 1,676 tons. There are, in effect, two lifts in one housing, for the troughs can work independently of each other. The 250 tons weight of each trough is balanced by counter-weights and it requires only two 30 h.p. electric motors to drive the winches. The aqueduct, the dry dock at the bottom which receives the troughs and the caissons themselves all have watertight gates.

The control cabin is on the top of the lift and it only takes five minutes to lift boats the 50 feet from the River Weaver to the level of the Trent and Mersey Canal. When I rode through the lift not long ago on a narrow boat, I was greatly impressed by the smoothness of the trip and by the skill of the boatmen.

My Gondola Had Wings—(*Continued from page 457*)

aerobatic displays on the last day of the show. I could not help regretting that only two British Pressmen, and no British aeroplanes, were there because it was one of the finest air displays I have ever seen.

Seventeen aircraft from six countries were put through their paces, some by test pilots, others by people who flew for fun or for business.

Star of the show was the young Belgian test pilot, Bernard Neefs, whose performance in the single-seat Tipsy Nipper left everyone breathless. After climbing to 4,000 feet, he began his show with a 22-turn spin and then did everything in the book, plus a few special tricks that aren't in it! Finally, the Nipper was cavorting around a mere ten feet above the ground. Being so tiny, with a span of only 19 ft. 8 in., it performs every evolution in a far smaller space than any other aerobatic aircraft I have ever seen, and it was easy to appreciate why so many are being sold, complete, as kits of parts and as plans for construction at home.

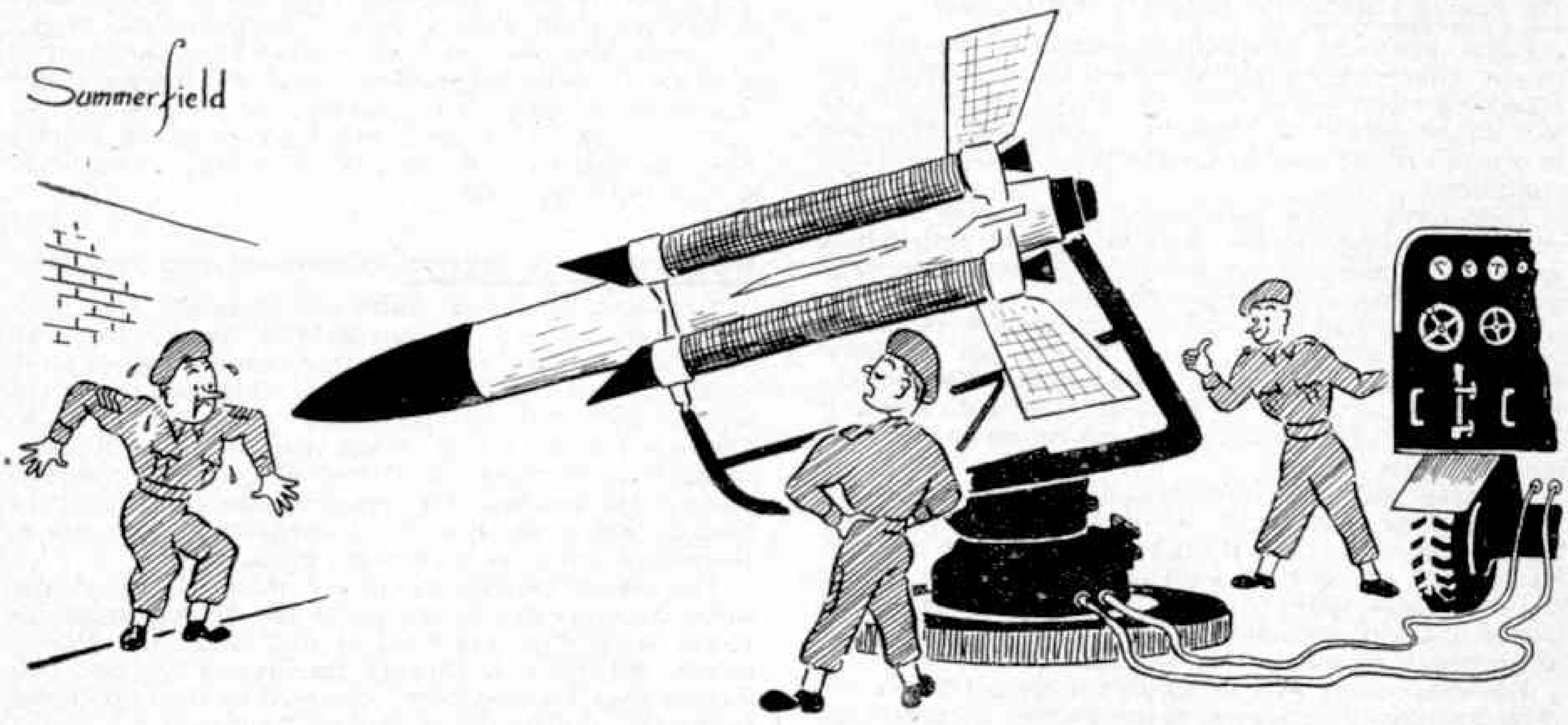
There was equally little doubt concerning the handsomest aeroplane at the show. For years the Italian designer, Mr. Stelio Frati, has been creating lightplanes of unusual beauty and speed. With the four-seat Procaer Picchio he has excelled himself. Although it is built of wood the entire outer plywood skin is covered with thin sheets of highly-polished aluminium. These are bonded in place, without any rivets, with the result that the outer surface of the fuselage, wings and tail is the smoothest and shiniest ever seen on any aeroplane.

It is not possible in so short an article to tell of all the other thrills of that afternoon in the sun by the Adriatic Sea, or of the beauties of Venice and the great kindness of our Italian hosts. Added together, they made the eighth International Air Show of Venice more enjoyable than any other air display I have ever attended.

Easy Model-Building—(*Continued from page 463*)

for the towing hook. The axle is a 3½" Rod journalled in the centre holes of the Flanged Plate, and carries two Road Wheels. The trailer is attached to the Tractor by passing a 2" Rod fitted with a Spring Clip through the Trunnion 9 and the Double Bracket 10.

Parts required to build the Tractor and Trailer:—6 of No. 2; 8 of No. 5; 2 of No. 10; 1 of No. 11; 7 of No. 12; 3 of No. 16; 1 of No. 17; 4 of No. 22; 1 of No. 24; 4 of No. 35; 41 of No. 37a; 40 of No. 37b; 8 of No. 38; 2 of No. 48a; 1 of No. 52; 4 of No. 90a; 1 of No. 111c; 1 of No. 126; 2 of No. 126a; 3 of No. 155; 1 of No. 186; 2 of No. 187; 2 of No. 188; 2 of No. 189; 2 of No. 190; 2 of No. 191; 1 of No. 214; 2 of No. 215; 4 of No. 221; 1 *Magic* Motor.



"What's it to be then, Sarge—Do we get a weekend pass or does Nobby press the Button?"

Fireside Fun

The spoiled boy went to boarding school for the first time and found that things were far from what he was accustomed to at home. He immediately sat down and wrote a hurried note to his parents. "Dear Pa and Ma," he scribbled, "please send me a hamper at once. All they serve here is breakfast, lunch and dinner."

* * * *

Two old men were discussing a mutual friend.

Said one, "Poor old Abe is living in the past."

"Why shouldn't he," the other replied, "it's a lot cheaper."

* * * *

The alarm rang at the Fire Station, "It's a terrible blaze at my house," a voice cried frantically. "The flames are licking through the basement and the first floor. Pretty soon they'll ravage the entire place."

"Did you try throwing water over it?", asked the lazy fire chief.

"Yes!"

"Then there's no use our coming over. That's all we do."

* * * *

"You know this is the fourth time I have had to ask you to return that money I lent you."

"That's nothing. I had to ask you at least a dozen times before you would lend it to me."

* * * *

Lady driver: "The thing I hate worst about parking is the noisy crash!"

* * *

A racehorse owner won an event with an eight-year-old animal that was running for the first time. He made a fortune backing it at long odds. The stewards, suspecting foul play, demanded an explanation from the owner.

"Was this horse unfit until now?"

"No, sir," asserted the owner. "Soundest horse you ever saw."

"Well, then," persisted a steward, "why haven't you raced him before?"

"To tell the truth, we couldn't catch him until he was seven."

* * * *

A bus conductor had been told several times about the noise he made coming home after late duty. "I wish you'd try to be more careful," his wife said to him. "You wake the baby every time you come in."

He promised to do his best. After the next spell of late duty he opened the front door without a sound, crept upstairs without a single creak, and reached the top landing safely. Then habit asserted itself. In a stentorian voice he bellowed, "All fares ready, please!"

* * * *

Two cannibals met in a mental institution. One was tearing out pictures of men, women and children from a magazine, stuffing them in his mouth and eating them.

"Tell me," said the other, "does that dehydrated stuff really taste the same?"

THIS MONTH'S BRAIN TEASER

On The Road

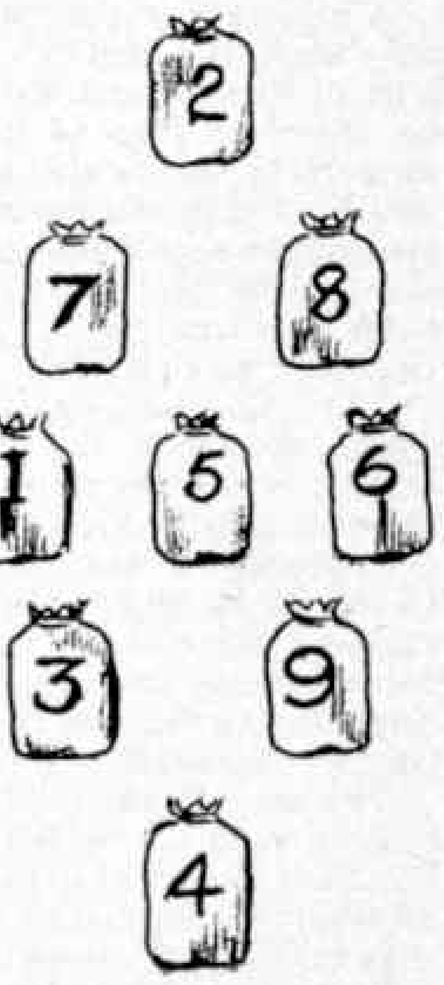
As I was going to St. Ives,
I met a man with seven wives,
Every wife had seven sacks,
Every sack had seven cats,
Every cat had seven kits.
Kits, cats, sacks and wives.
How many were there going to St. Ives?

* * *

Answer to Last Month's Puzzle

The Miller and his Sacks

The required change can be made by moving five of the sacks so as to bring them into the positions shown alongside.



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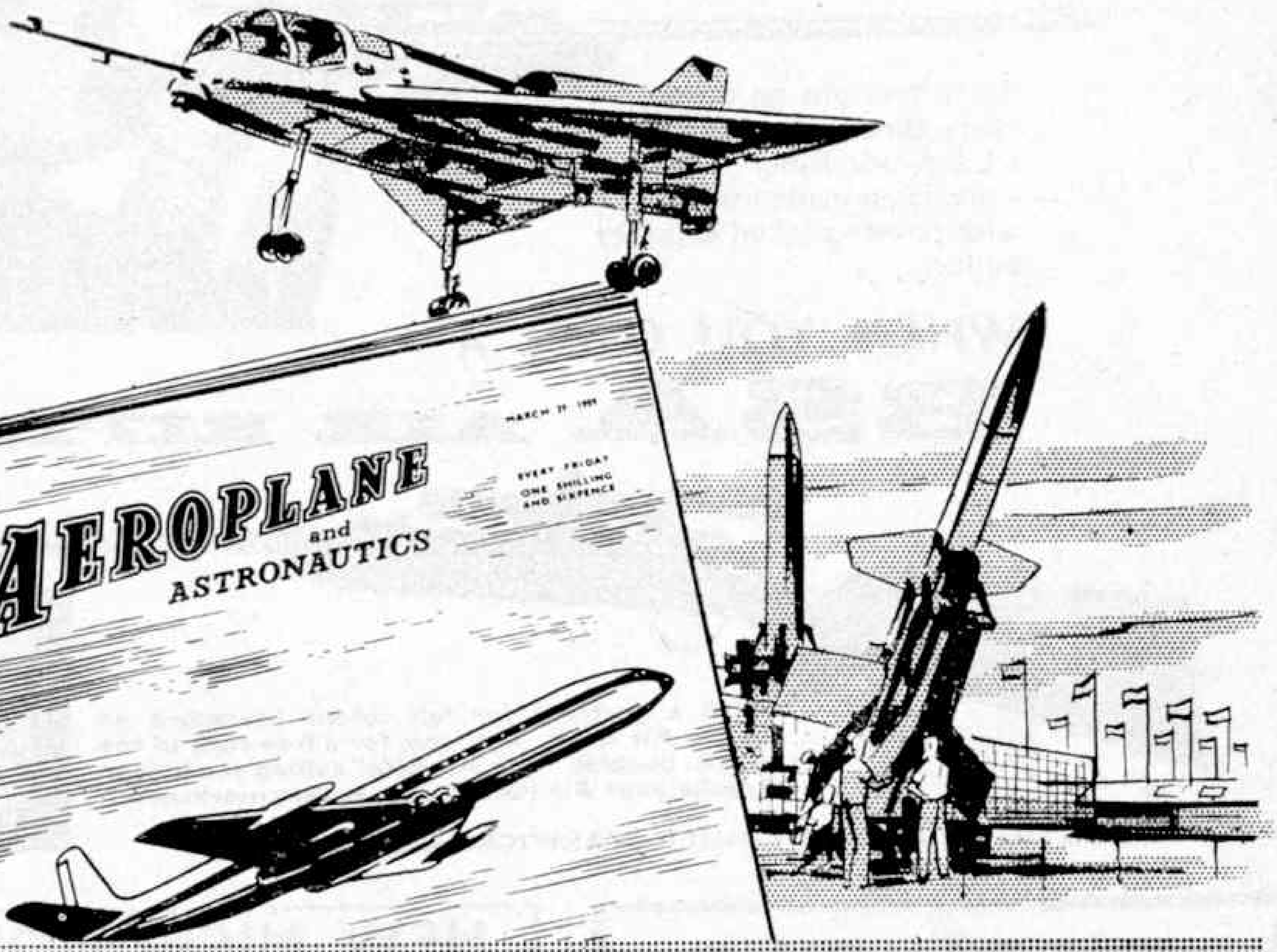

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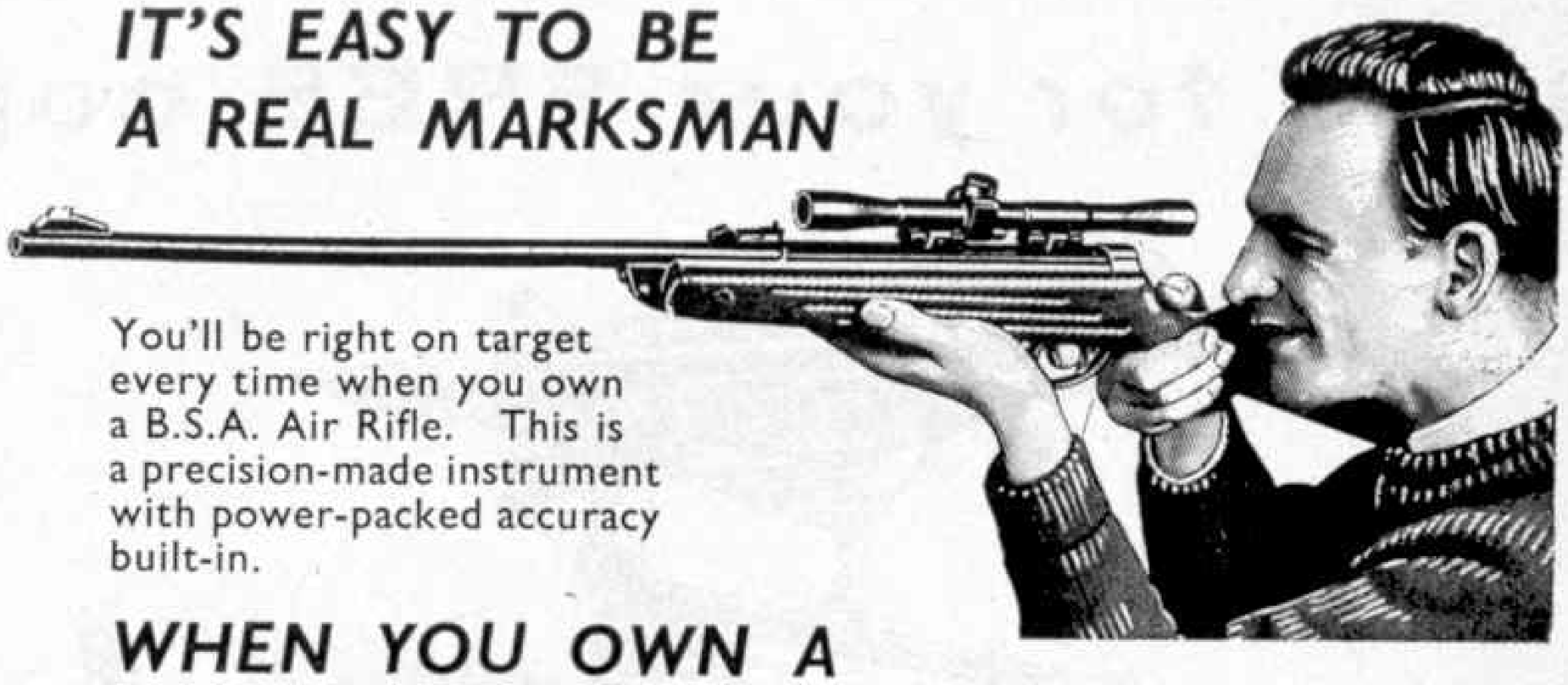

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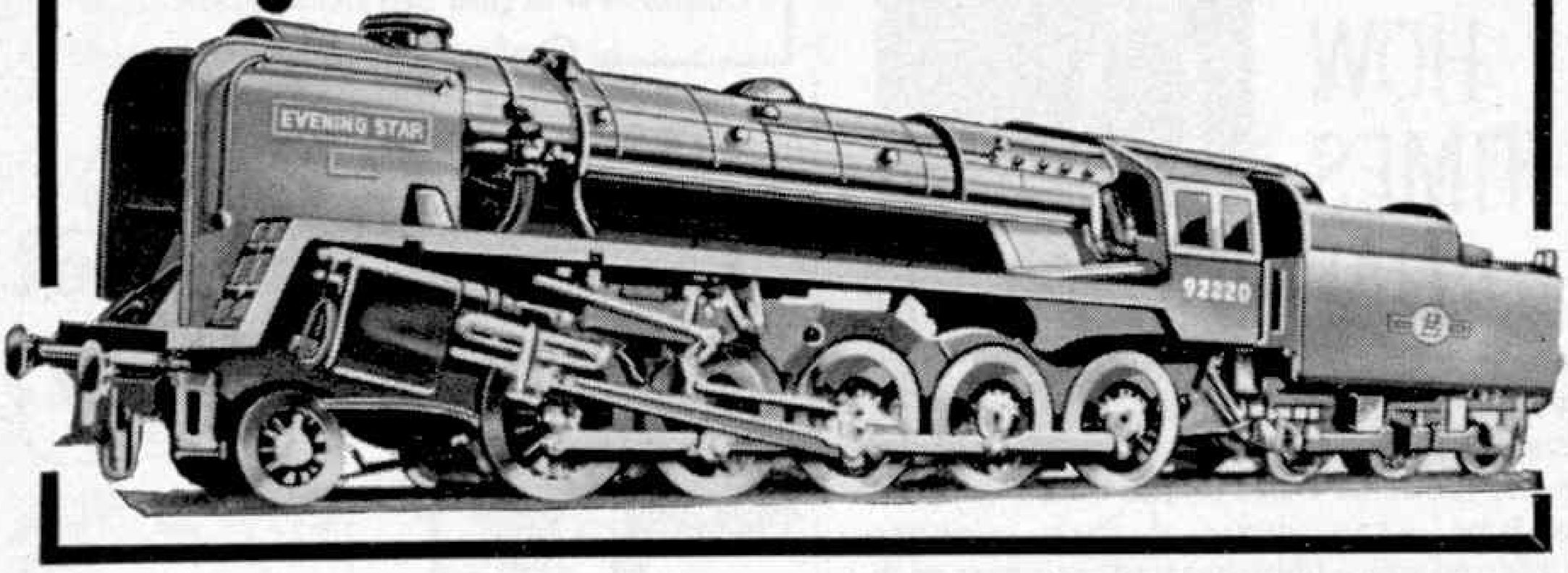

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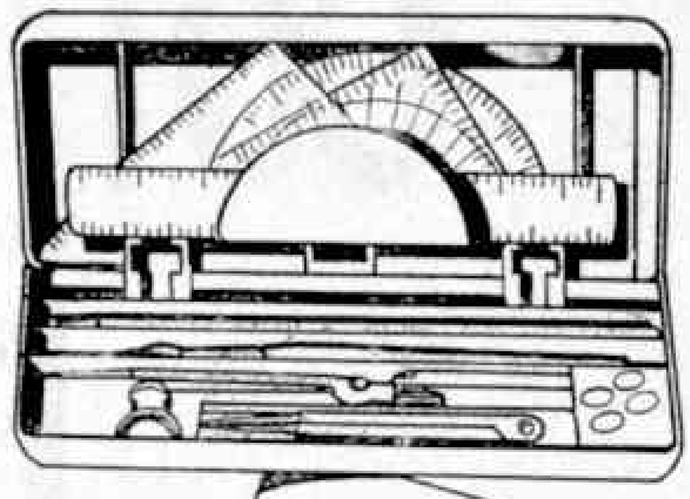

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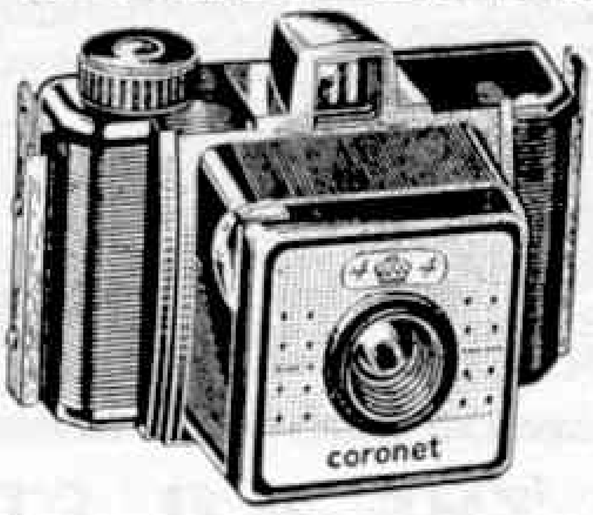

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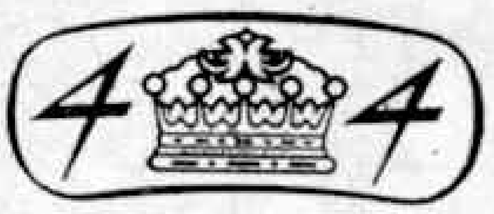

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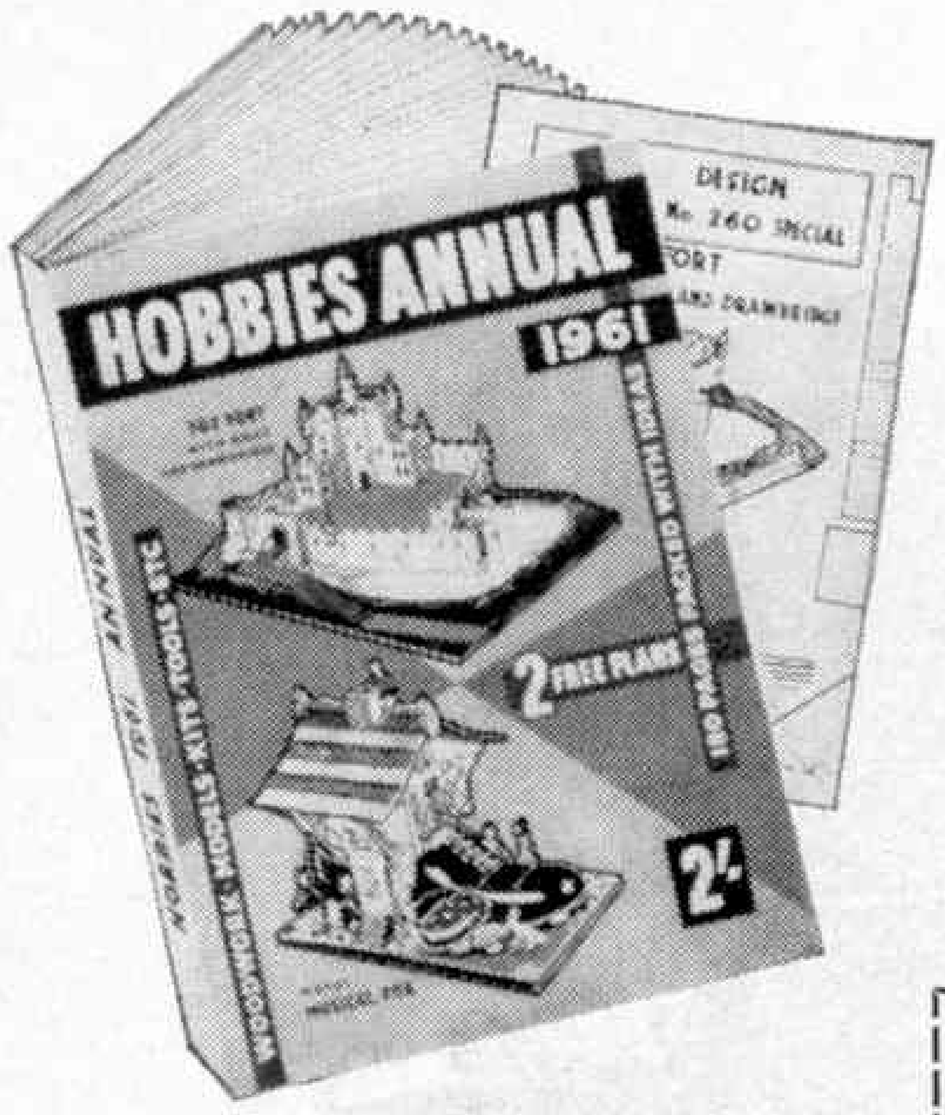

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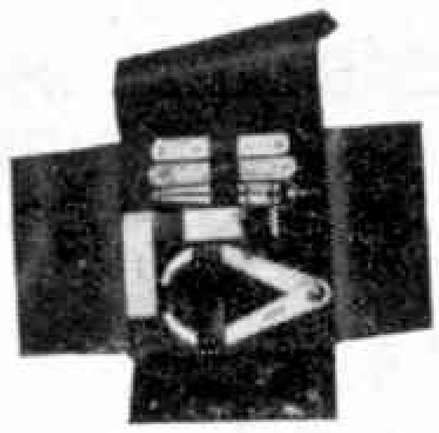

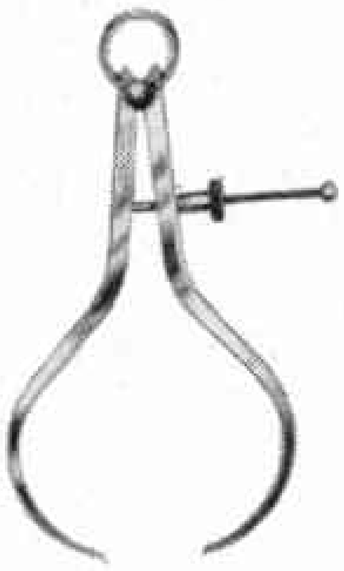

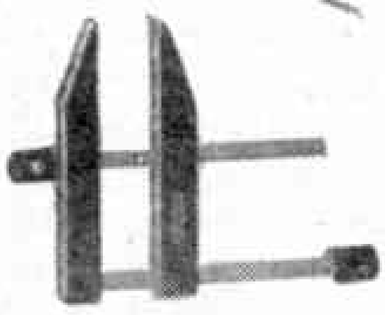

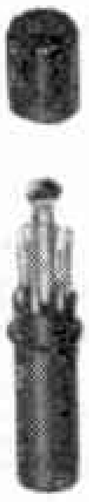

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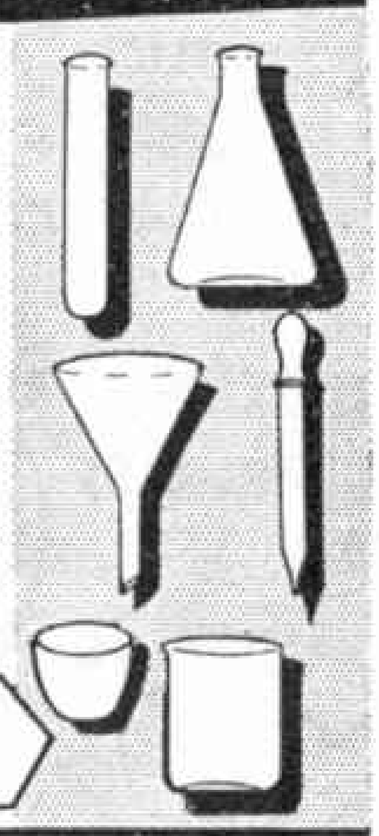

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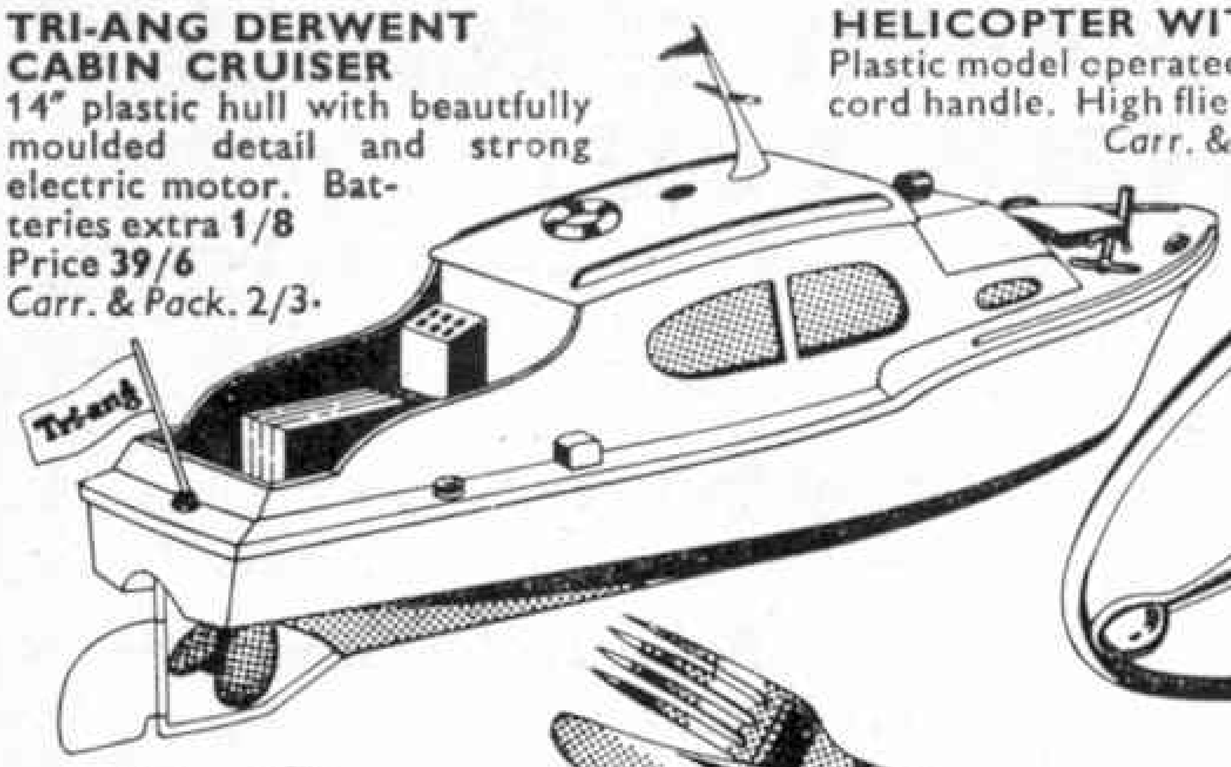

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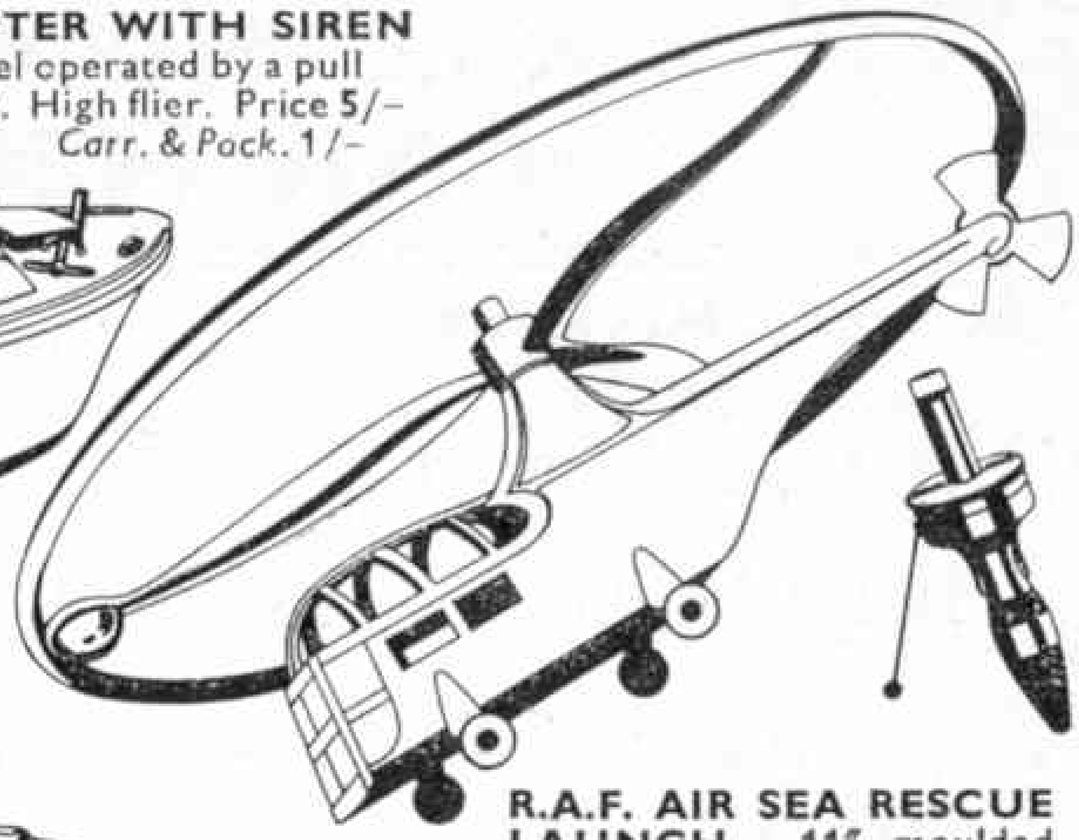

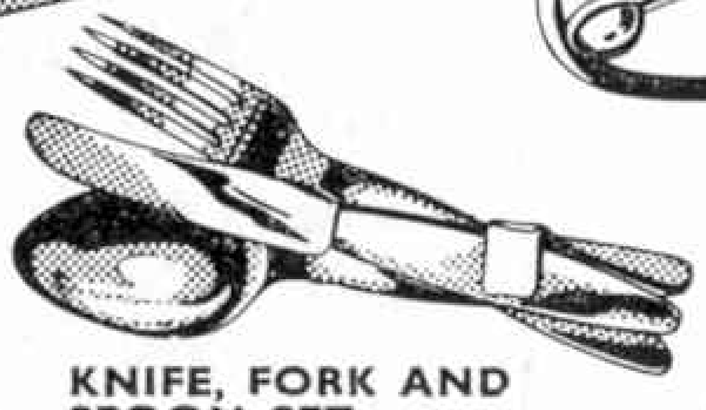

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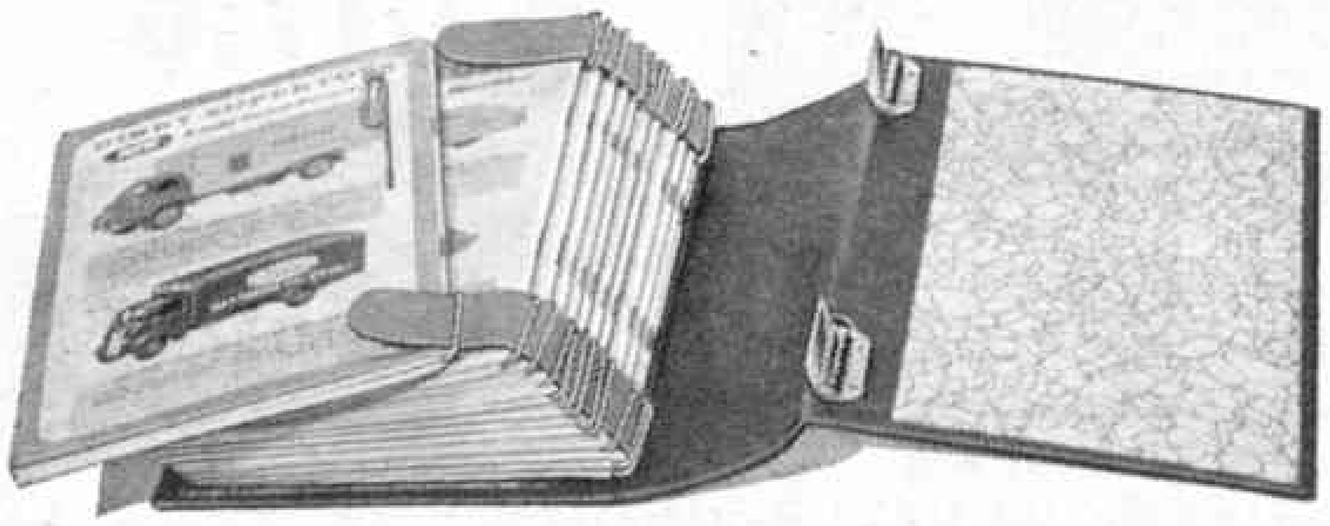

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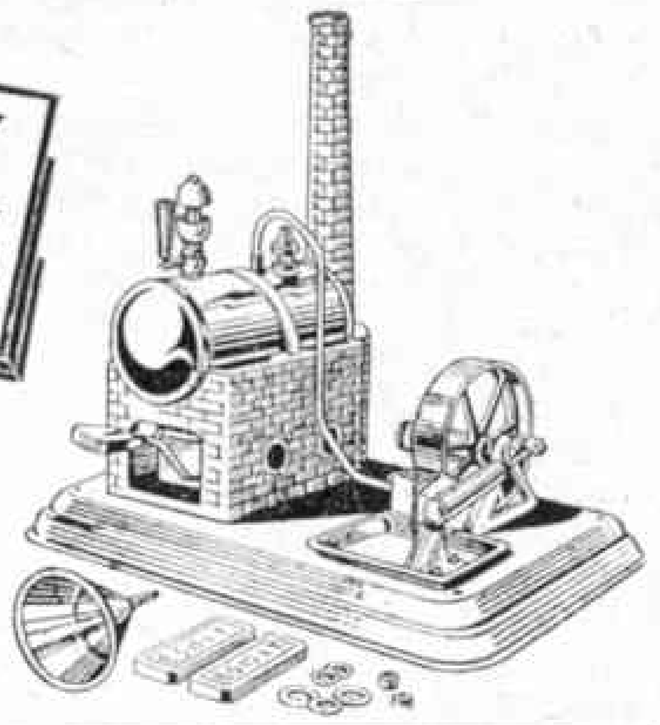

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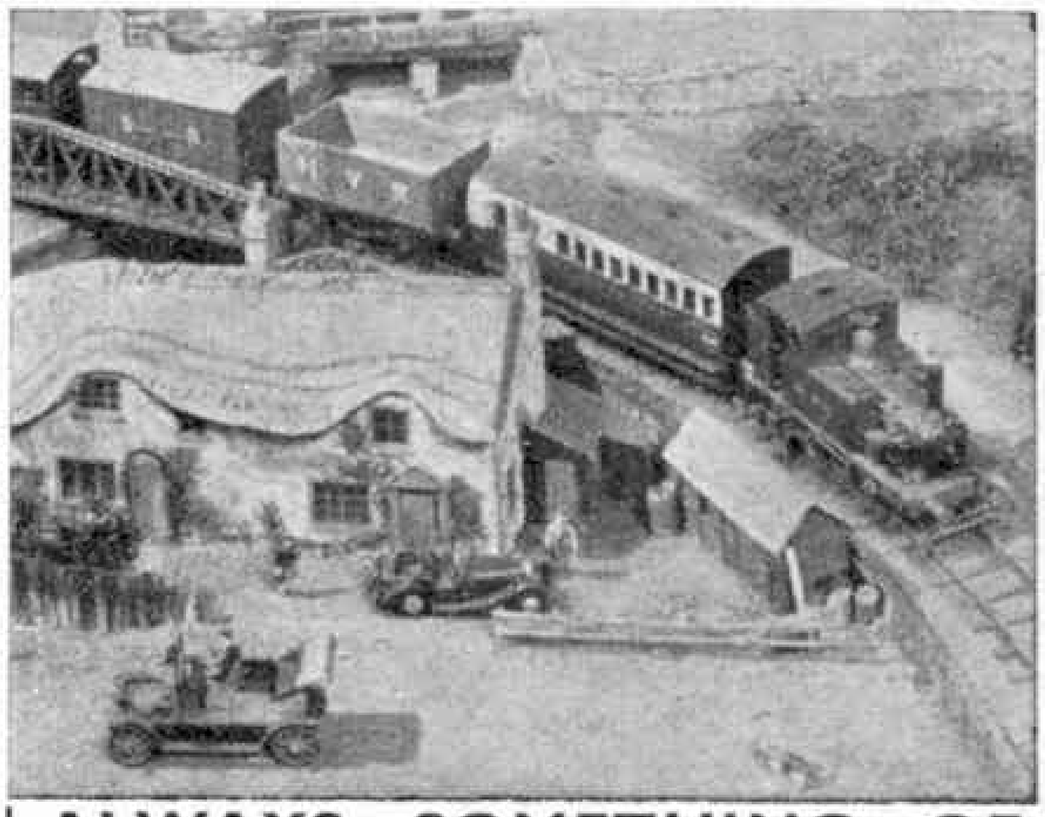

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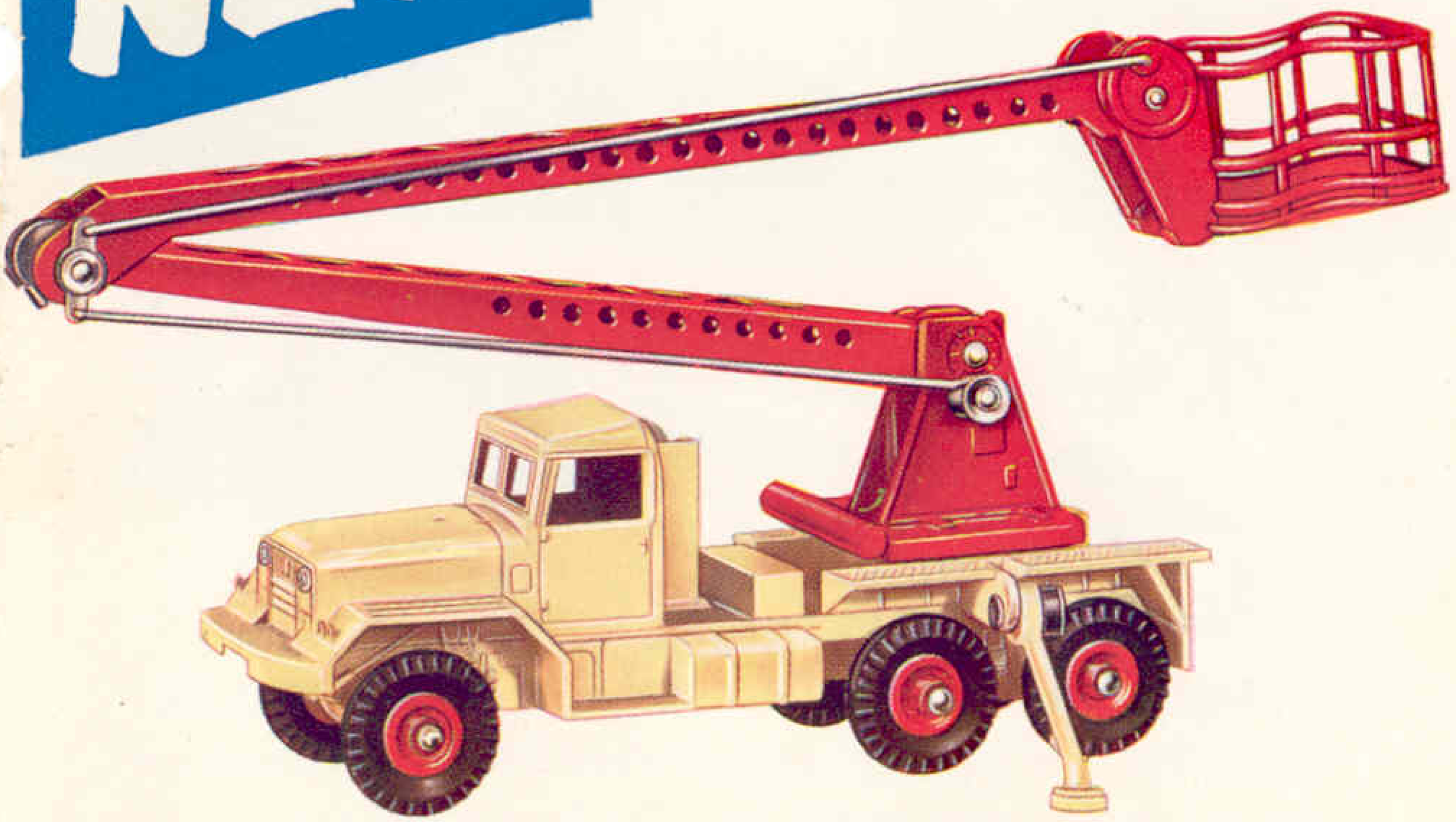

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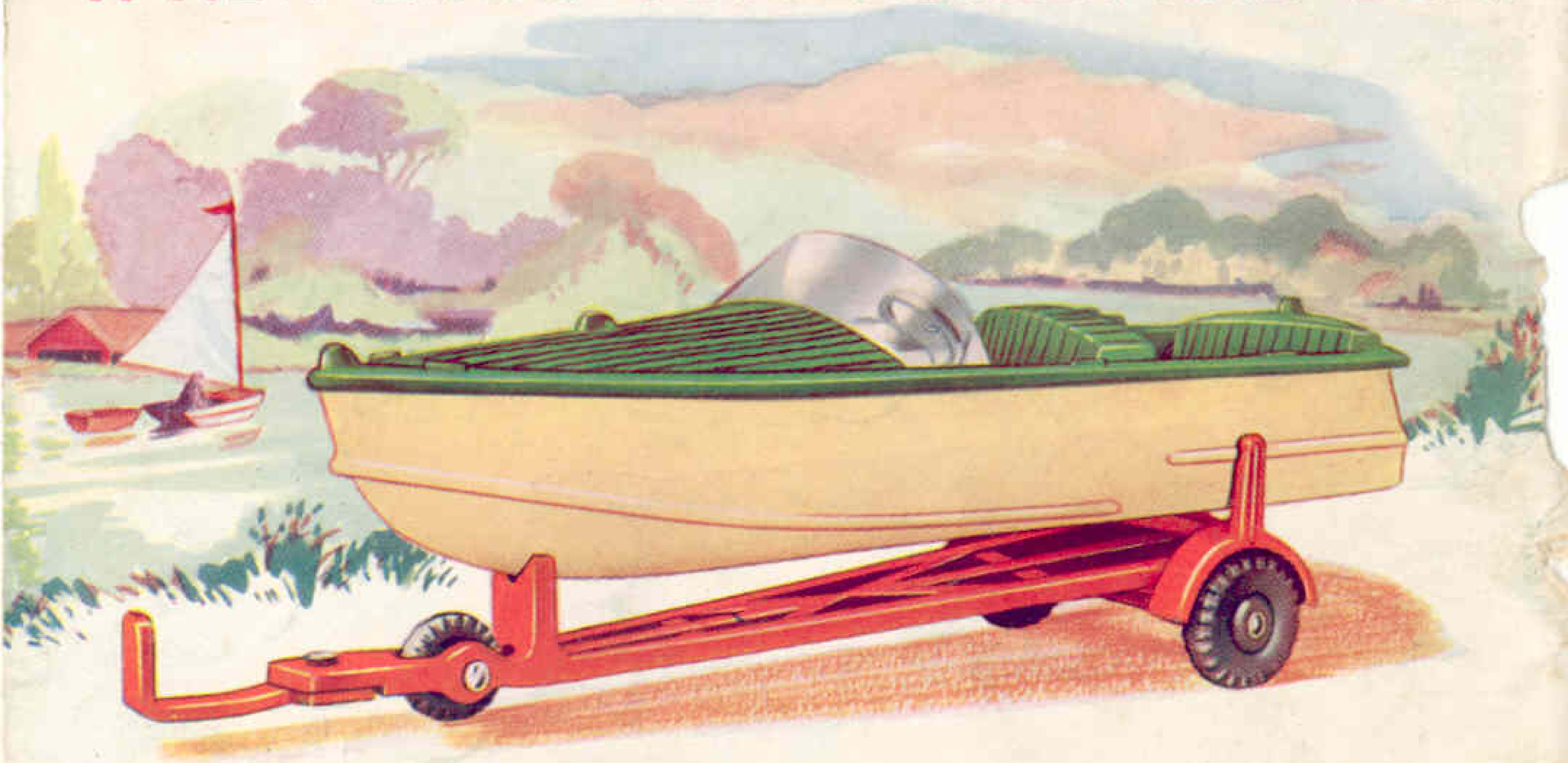

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